

## N O T I C E

THIS DOCUMENT HAS BEEN REPRODUCED FROM  
MICROFICHE. ALTHOUGH IT IS RECOGNIZED THAT  
CERTAIN PORTIONS ARE ILLEGIBLE, IT IS BEING RELEASED  
IN THE INTEREST OF MAKING AVAILABLE AS MUCH  
INFORMATION AS POSSIBLE

**NASA CR-**

159999

DOCUMENTATION BRANCH  
CODE 256.0

79SDS4227  
1 JUNE 1979

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and without liability  
for any use made thereof."

**LANDSAT-2 AND LANDSAT-3  
FLIGHT EVALUATION REPORT**

**23 JANUARY 1979 TO 23 APRIL 1979**

80-10291  
CR-159999

**Prepared By  
GE LANDSAT OPERATIONS CONTROL CENTER**

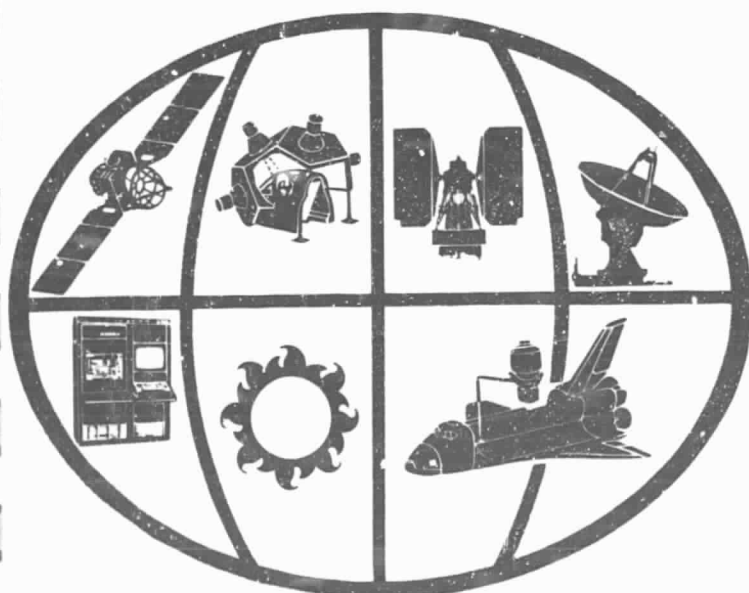
**For  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
Goddard Space Flight Center  
Greenbelt, Maryland 20771**

(E80-10291) LANDSAT-2 AND LANDSAT-3 FLIGHT  
EVALUATION REPORT Technical Report, 23 Jan.  
- 23 Apr. 1979 (General Electric Co.) 255 p  
HC A12/MF A01 CSCL 05B

N80-30859

Unclas  
00291

G3/43



space division



Contract NAS5-21808

GENERAL  ELECTRIC



## TABLE OF CONTENTS

Section		Page
	INTRODUCTION . . . . .	vii
1	SUMMARY - LANDSAT-2 OPERATIONS . . . . .	1-1
2	ORBITAL PARAMETERS . . . . .	2-1
3	POWER SUBSYSTEM . . . . .	3-1
4	ATTITUDE CONTROL SUBSYSTEM. . . . .	4-1
5	COMMAND/CLOCK SUBSYSTEM . . . . .	5-1
6	TELEMETRY SUBSYSTEM . . . . .	6-1
7	ORBIT ADJUST SUBSYSTEM . . . . .	7-1
8	MAGNETIC MOMENT COMPENSATING ASSEMBLY . . . . .	8-1
9	UNIFIED S-BAND/PREMODULATION PROCESSOR . . . . .	9-1
10	ELECTRICAL INTERFACE SUBSYSTEM . . . . .	10-1
11	THERMAL SUBSYSTEM . . . . .	11-1
12	NARROWBAND TAPE RECORDERS . . . . .	12-1
13	WIDEBAND TELEMETRY SUBSYSTEM . . . . .	13-1
14	ATTITUDE MEASUREMENT SENSOR . . . . .	14-1
15	WIDEBAND VIDEO TAPE RECORDERS . . . . .	15-1
16	RETURN BEAM VIDICON . . . . .	16-1
17	MULTISPECTRAL SCANNER SUBSYSTEM . . . . .	17-1
18	DATA COLLECTION SUBSYSTEM . . . . .	18-1
APPENDIX A: LANDSAT-2 ANOMALIES AND OBSERVATIONS . . . . .		A-1
APPENDIX B: LANDSAT-2 SPACECRAFT ORBIT REFERENCE TABLES . . . . .		B-1
APPENDIX C: LANDSAT-2 DOCUMENTS ISSUED THIS REPORT PERIOD . . . . .		C-1

# LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
2-1	Effect of Orbit Adjusts and Pitch Position Bias Orbit Maintenance on Landsat-2's Ground Track . . . . .	2-3
2-2	Local Mean Time of Descending Node - Landsat-2 . . . . .	2-5
2-3	Drift in Angular Phasing Between Landsat-2 and Landsat-3 . . . . .	2-9
3-1	Landsat-2 Midday Solar Array Degradation vs. Days from Launch . . . . .	3-2
3-2	Landsat-2 Midday Solar Array Current . . . . .	3-3
3-3	Landsat-2 Actual $\beta$ (Orbit Plane) and $\alpha$ (Solar Panel) Sun Angles . . . . .	3-9
3-4	Predicted Beta Angle for LS-2 . . . . .	3-10
4-1	Landsat-2 Freon Life Expectancy . . . . .	4-3
5-1	Landsat-2 Clock Drift History . . . . .	5-2
5-2	Cumulative Clock Drift . . . . .	5-3
5-3	Drift Rate of S/C Clock . . . . .	5-3
7-1	ACS 1 - Landsat-2 OA . . . . .	7-2
7-2	ACS 2 - Landsat-2 OA . . . . .	7-3
7-3	ACS 3 - Landsat-2 OA . . . . .	7-4
7-4	ACS 4 - Landsat-2 OA . . . . .	7-5
11-1	Landsat-2 Sensory Ring Average Bay Temperatures - Orbit 21466, 10 April 1979 . . . . .	11-3
15-1	Landsat-2 WBVTR-2 Tape Usage Thru Orbit 21798 . . . . .	15-4
17-1	MSS Scenes This Quarter Landsat-2 (Cycles 81-85) . . . . .	17-3
17-2	MSS Scenes Since Launch Landsat-2 . . . . .	17-5
17-3	Landsat-2 Sensor 2 Response to Six Positions in the Cal Wedge . . . . .	17-8
17-4	Landsat-2 Sensor 6 Response to Six Positions in the Cal Wedge . . . . .	17-9
17-5	Landsat-2 Sensor 8 Response to Six Positions in the Cal Wedge . . . . .	17-10
17-6	Landsat-2 Sensor 12 Response to Six Positions in the Cal Wedge . . . . .	17-11
17-7	Landsat-2 Sensor 13 Response to Six Positions in the Cal Wedge . . . . .	17-12
17-8	Landsat-2 Sensor 17 Response to Six Positions in the Cal Wedge . . . . .	17-13
17-9	Landsat-2 Sensor 22 Response to Six Positions in the Cal Wedge . . . . .	17-14
17-10	Landsat-2 Sensor 24 Response to Six Positions in the Cal Wedge . . . . .	17-15

# LIST OF TABLES

<u>Number</u>		<u>Page</u>
1-1	In-Orbit Payload Systems Performance Launch thru Orbit 21666 (4-25-79) Landsat-2 . .	1-2
2-1	Landsat-2 Brouwer Mean Orbital Parameters . . . . .	2-7
3-1	Landsat-2 Battery Restoration Cycle . . . . .	3-5
3-2	Landsat-2 Major Power Subsystem Parameters . . . . .	3-7
3-3	Landsat-2 Power Subsystem Analog Telemetry (Average Value for Data Received in NBTR Playback). . . . .	3-8
4-1	Landsat-2 Pitch Position Bias Quarterly Summary . . . . .	4-2
4-2	Landsat-2 ACS Subsystem Temperature and Pressure Average . . . . .	4-4
4-3	Landsat-2 ACS Voltages and Currents . . . . .	4-5
4-4	Landsat-2 ACS Attitude Errors and Driver Duty Cycles . . . . .	4-6
5-1	Command/Clock Telemetry Summary, Landsat-2 . . . . .	5-1
6-1	Landsat-2 TMP Telemetry Values . . . . .	6-1
7-1	Landsat-2 Orbit Adjust Summary . . . . .	7-7
7-2	Landsat-2 OAS Telemetry Values . . . . .	7-9
8-1	Landsat-2 MMCA Telemetry Values . . . . .	8-1
9-1	Landsat-2 USB/PMP Telemetry Values . . . . .	9-1
10-1	Landsat-2 APU Telemetry Functions . . . . .	10-1
11-1	Thermal Subsystem Analog Telemetry (Average Value for Frames of Data Received in NBTR Playback). . . . .	11-2
11-2	Landsat-2 Compensation Load History . . . . .	11-4
12-1	NBR Operating Hours by Mode . . . . .	12-1
12-2	Narrowband Tape Recorder Telemetry Values, Landsat-2. . . . .	12-2
13-1	Typical Wideband Subsystem Telemetry . . . . .	13-1
14-1	Landsat-2 AMS Temperature Telemetry. . . . .	14-1
15-1	Telemetry Values for WBVTR-1 and 2 . . . . .	15-1
15-2	Function Values by Mode, Landsat-2 WBVTR-1 Telemetry . . . . .	15-2
15-3	Function Values by Mode, Landsat-2 WBVTR-2 Telemetry . . . . .	15-3
16-1	RBV Telemetry Values . . . . .	16-1
16-2	Camera #1 (Blue) Telemetry (Values in TMV). . . . .	16-3
16-3	Camera #2 (Yellow) Telemetry (Values in TMV) . . . . .	16-3
16-4	Camera #3 (Red) Telemetry (Values in TMV) . . . . .	16-3
17-1	MSS Telemetry - Landsat-2. . . . .	17-7

## INTRODUCTION

This is the 18<sup>th</sup> report in a continuing series of documents issued at launch, and quarterly thereafter, to present flight performance analyses of the Landsat-2 spacecraft. Previously issued documents are:

Document No.	Title	Date
75SDS4215	Landsat-2 Launch and Flight Activation Evaluation Report, 22 to 26 January 1975, Launch through Orbit 50 and Orbit Adjust Operation.	21 March 1975
75SDS4228	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 January 1975 to 23 April 1975.	15 August 1975
75SDS4255	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 April 1975 to 23 July 1975.	10 October 1975
75SDS4266	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 July 1975 to 23 October 1975.	1 December 1975
76SDS4207	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 October 1975 to 23 January 1976.	29 February 1976
76SDS4248	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 January 1976 to 23 April 1976.	14 July 1976
76SDS4263	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 April 1976 to 23 July 1976.	15 October 1976
76SDS4278	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 July 1976 to 23 October 1976	30 November 1976
77SDS4204	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 October 1976 to 22 January 1977.	22 February 1977
77SDS4228	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 January 1977 to 23 April 1977.	23 May 1977
77SDS4244	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 April to 23 July 1977	22 August 1977

Document No.	Title	Date
77SDS4258	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 July 1977 to 23 October 1977	2 November 1977
78SDS4202	Landsat-1 and Landsat-2 Flight Evaluation Report, 23 October 1977 to 23 January 1978	1 February 1978
78SDS4216	Landsat-1, Landsat-2, and Landsat-3 Flight Evaluation Report, 23 January 1978 to 23 April 1978	3 May 1978
78SDS4232	Landsat-2 and Landsat-3 Flight Evaluation Report, 23 April 1978 to 23 July 1978	1 August 1978
78SDS4250	Landsat-2 and Landsat-3 Flight Evaluation Report, 23 July 1978 to 23 October 1978	1 November 1978
79SDS4201	Landsat-2 and Landsat-3 Flight Evaluation Report, 23 October 1978 to 23 January 1979	1 February 1979

This report contains analysis of flight performance for Orbits 20270 to 21460 for Landsat-2.

SECTION 1  
SUMMARY LANDSAT-2 OPERATIONS

The Landsat-2 spacecraft was launched from the Western Test Range on 22 January 1975, at 022:17:55:51.604. The launch and orbit injection phase of the space flight were nominal and deployment of the spacecraft followed predictions. All systems continue to perform normally except Forward Scanner Pressure, Forward Scanner Pressure Telemetry, Wideband Video Tape Recorder No. 1 (WBVTR-1), and Narrow Band Tape Recorder No. 1 (NBTR-1). The Forward Scanner Pressure had begun leaking before launch but will not affect scanner performance. The Forward Scanner Pressure (Function 1003) telemetry became erratic in Orbit 2244 on 2 July 1975.

WBVTR-1 failed to rewind during Orbit 1021, 5 April 1975, and had intermittent operation until Orbit 2238, 2 July 1975, when normal operation was resumed. WBVTR-1 had a new anomaly in Orbit 2683 on 3 August 1975 because of failure of one of the 4 heads. As a result, it could not be used with MSS data, but performed satisfactorily with RBV data (because RBV provides a synchronizing pulse which permits data from the bad head to be isolated and eliminated). After Orbit 7181 on 20 June 1976, the recorder was used regularly in service recording RBV data until failure of a second head in Orbit 10064, 13 January 1977. All operation of WBVTR-1 had been discontinued since that date.

WBVTR-2 started to rewind but stopped prematurely in Orbit 1919, 9 June 1975, and again in Orbit 3854, 26 October 1975, with the cause unknown. Unit remains operational.

WBVTR-2 had 30% high headwheel current during playback in Orbit 9738 on 21 December 1976. The anomaly is cured by an operational procedure of toggling playback to record to playback. This anomaly occurs frequently but WBVTR-2 has operated for nearly 1100 hours. Unit remains operational.

Narrow Band Tape Recorder No. 1 (NBTR-1) halted after 35 seconds of playback in Orbit 20267, on 15 January 1979. Subsequent attempts at operation were unsuccessful. NBTR-1 had 18320 hours of in-flight operation over its four years of flight. The remaining good Narrow Band Tape Recorder No. 2 is being used to cover MSS, RBV, Downlinks, and Video Tape Recorder operation. One long (2.5 hour) record operation per day is scheduled for offline analysis.

Batteries 1, 2, 5, 6, 7 and 8 have been turned OFF one by one for restoration cycles and returned to service after a few weeks.

From 2 November 1977 to 2 February 1978, a series of orbit adjust burns were made to change the inclination angle of Landsat-2. Payload operation continued during this cycle as the ground track was maintained.

The DCS receiver was turned OFF in Orbit 15857, 4 March 1978. DCS operation has been resumed with Landsat-3.

The spacecraft continues to perform its mission satisfactorily. Table 1-1 shows cumulative in-orbit payload system performance.

Table 1-1. In-Orbit Payload Systems Performance Launch thru Orbit 21866 (4-25-79) Landsat 2

RBV	Total Scenes Imaged	2,836
	Total Area Imaged (million sq. n mi.)	24.8
	ON TIME (hr.)	30.1
	ON/OFF Cycles	347
	% Real Time Images	74
	% Recorded Images	26
MSS	Total Scenes Imaged	316,571
	Total Area Imaged (million sq. n mi.)	2,760
	ON TIME (hr.)	3,352
	ON/OFF Cycles	20,680
	% Real Time Images	80
	% Recorded Images	20
DCS (Not in Use)	Messages at OCC	1,353,058
	Users	(Not in Use)
	ON TIME (hr.)	27,283
WPA-1	ON TIME (hr.)	109.3
	ON/OFF Cycles	705
WPA-2	ON TIME (hr.)	2,944
	ON/OFF Cycles	16,352
WBVTR-1 (Not in Use)	% Record Mode	38
	% Playback Mode	41
	% Rewind Mode	20
	% Standby Mode	1
	Time Head-Tape Contact (hr.)	121.7
	Cycles Head-Tape Contact	1,050
	ON TIME (hr.)	154
WBVTR-2	% Record Mode	38
	% Playback Mode	41
	% Rewind Mode	20
	% Standby Mode	1
	MFSE Count in P/B	~19
	Time Head-Tape Contact (hr.)	1,082
	Cycles Head-Tape Contact	15,065
	ON TIME (hr.)	1,370

## SECTION 2

### ORBITAL PARAMETERS

At the close of this report period, Landsat-2's ground track error was 3.06 nm East (longitude at the equator).

Spacecraft drag was more pronounced during this quarter due to increased solar activity. Consequently, the orbital ground track required correction and a minus X axis orbit maintenance orbit adjust was performed in Orbit 20514 (1 February 1979).

Error in longitude since launch as a function of time, orbit maintenance burns, and the Pitch Position Bias program are shown in Figure 2-1.

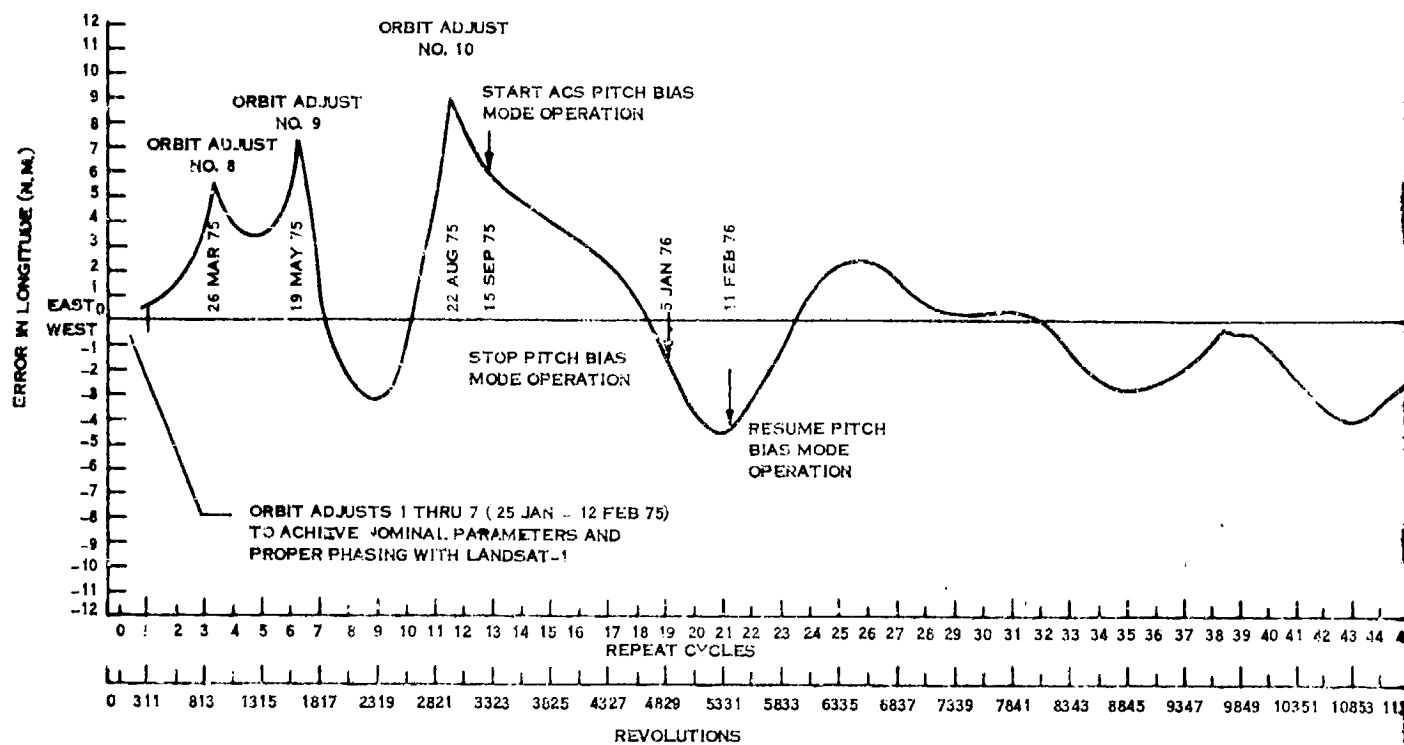
Figure 2-2 shows the mean local time for the spacecraft descending equatorial cross. The mean local time crossings for Landsats 2 and 3 respectively are 09:21:51 MLT and 09:31:48 MLT and phasing relationships between Landsat-2 and 3 are given in Figure 2-3. Landsat-3 leads Landsat-2 at their descending equatorial crossings by 41.5 GMT minutes.

The Brouwer Mean Orbital parameters for Landsat-2 are given in Table 2-1.

Appendix B provides the spacecraft orbit reference tables for October 1978 to January 1980.



FOLDOUT FRAME



FOLDOUT FRAME

FOLDOUT GRAM 2

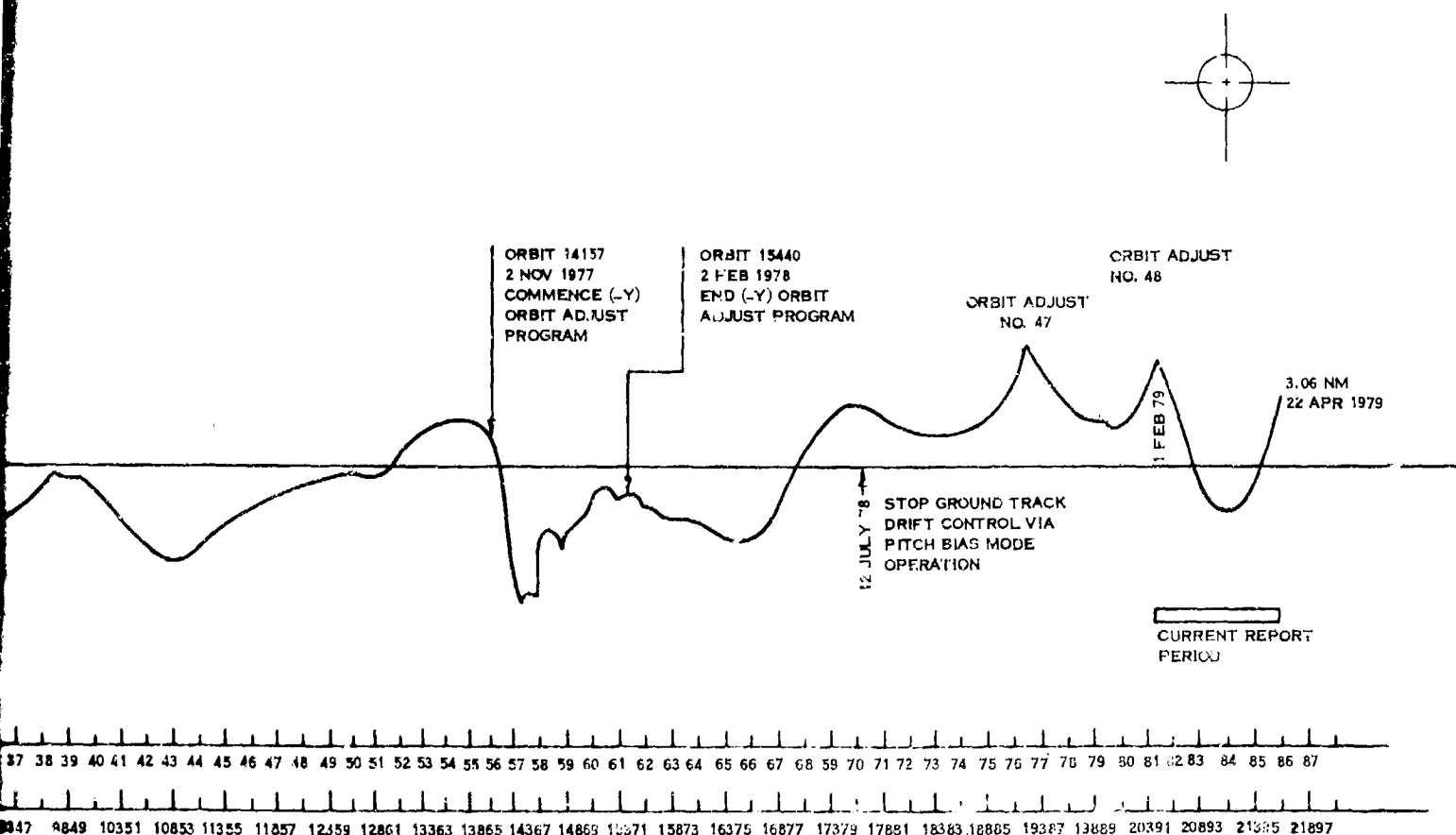
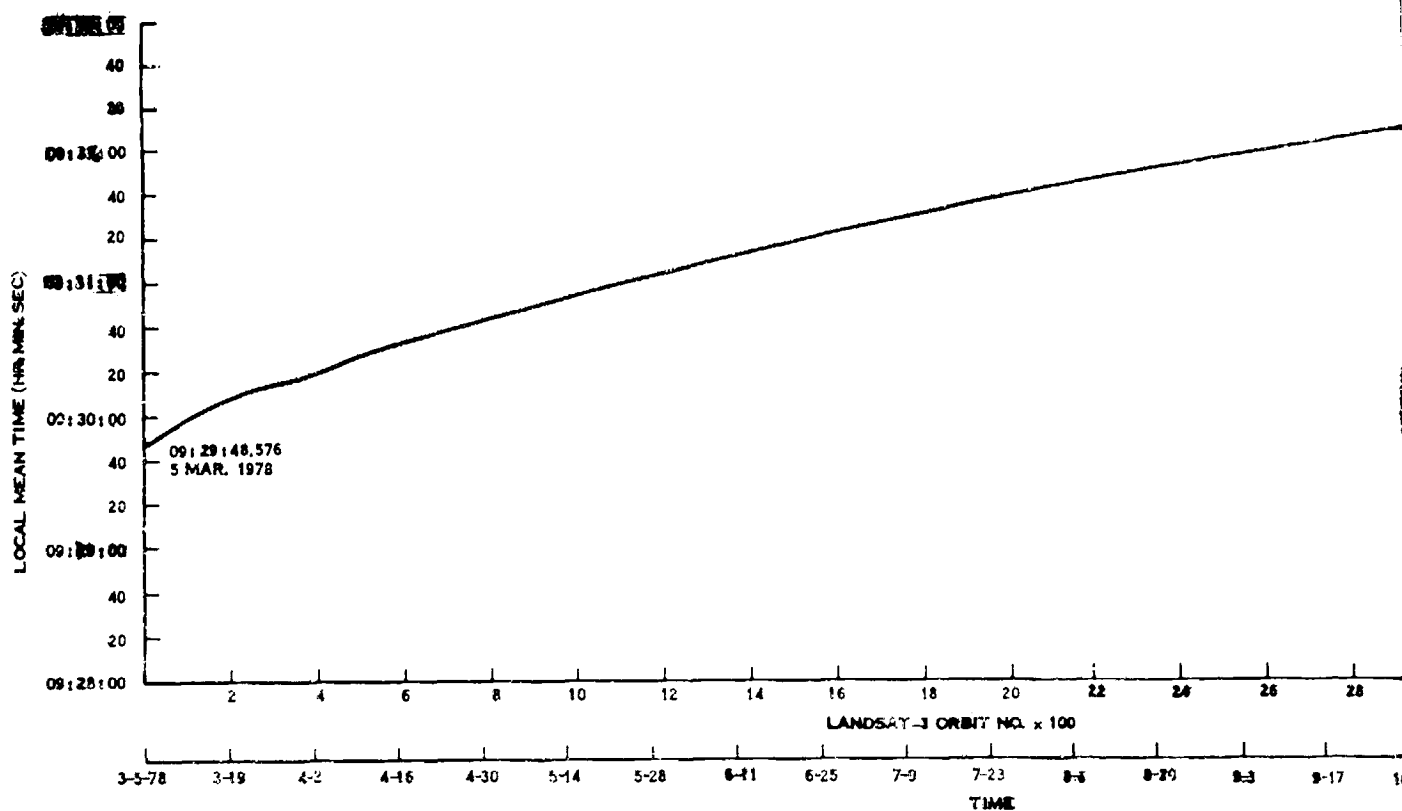


Figure 2-1. Effect of Orbit Adjusts and Pitch Position Bias Orbit Maintenance on Landsat-2's Ground Track



EOLBURY

00:31:47.000  
ORBIT 5701  
22 APR 1979

2

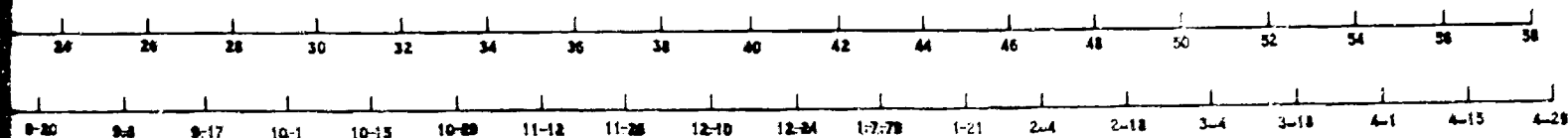
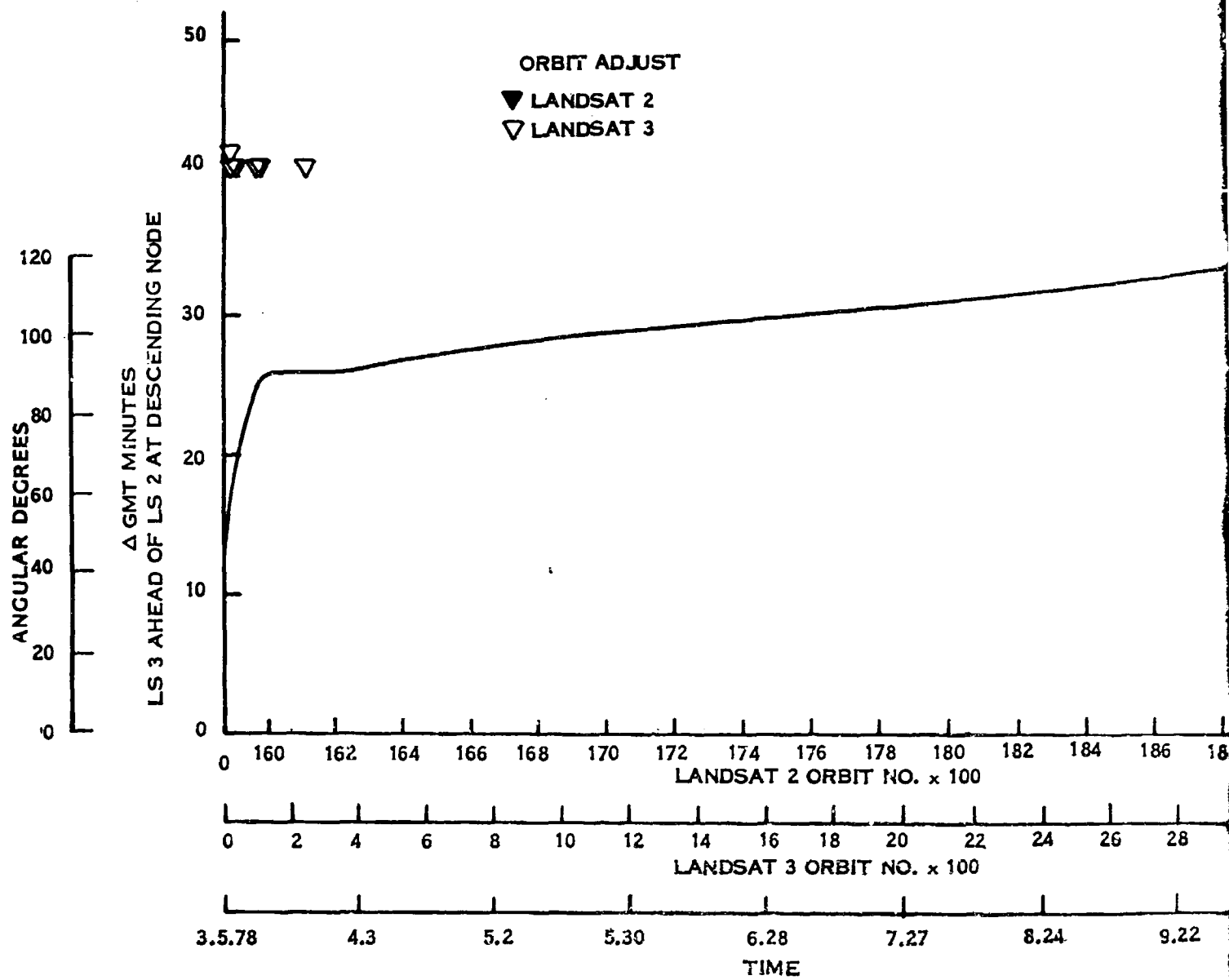


Figure 2-2. Local Mean Time of Descending  
Node - Landsat-2

Table 2-1. Landsat-2 Brouwer Mean Orbital Parameters

Element Date	Apogee (KM)	Perigee (KM)	Inclination (Deg.)	Semi-Major Axis (KM)	Eccentricity	Anomolistic Period (Min)	Nodal Period (Min)	Argument of Perigee (Deg)	Right Ascension (Deg)	Mean Anomaly (Deg)
25 Jan 1975 <sup>1</sup>	915.03	901.56	99.095	7285.462	0.000925	103.165	—	272.852	86.637	139.578
6 Feb 1975 <sup>2</sup>	916.84	898.47	99.095	7285.820	0.001260	103.151	—	258.040	99.347	134.523
24 Apr 1975	917.85	897.40	99.079	7285.788	0.001403	103.151	103.266	62.55	174.339	117.183
25 July 1975	917.45	897.68	99.071	7285.733	0.001355	103.150	103.265	186.118	284.891	13.726
23 Oct 1975	916.70	898.49	99.059	7285.762	0.001250	103.150	103.266	282.749	353.366	257.271
24 Jan 1976	917.36	897.81	99.016	7285.751	0.001342	103.150	103.266	31.621	84.584	148.179
23 Apr 1976	917.67	897.44	99.029	7285.721	0.001389	103.149	103.265	139.745	172.774	40.033
22 July 1976	916.62	898.40	99.021	7285.677	0.001251	103.148	103.264	253.964	280.924	286.054
22 Oct. 1976	918.95	898.09	99.009	7285.683	0.001251	103.148	103.264	6.744	350.795	173.119
22 Jan. 1977	917.59	897.47	98.993	7285.693	0.001381	103.149	103.265	111.579	80.587	68.155
22 Apr 1977	916.84	898.09	98.975	7285.633	0.001287	103.147	103.263	221.210	188.277	318.768
24 Jul 1977	916.47	898.46	98.967	7285.632	0.001236	103.147	103.263	334.189	257.806	205.754
23 Oct 1977	917.40	897.52	98.955	7285.627	0.001364	103.147	103.263	81.812	347.225	97.914
22 Jan 1978 <sup>3</sup>	915.24	900.32	99.162	7285.943	0.001024	103.154	103.269	191.142	76.302	348.761
22 Apr 1978 <sup>4</sup>	914.74	900.97	99.215	7286.022	0.000945	103.156	103.271	309.149	166.247	230.816
23 Jul 1978	915.52	899.91	99.206	7286.880	0.001071	103.153	103.268	62.192	258.083	304.755
23 Oct 1978	915.50	900.07	99.194	7286.923	0.001059	103.154	103.269	162.731	349.853	149.509
16 Jan 1979	914.70	900.89	99.179	7286.938	0.000948	103.154	103.269	296.602	74.498	103.544
22 Apr 1979	915.42	900.09	99.1631	7286.8974	0.001052	103.154	103.269	38.281	169.946	230.169

1. Post Launch.
2. After the sequence of phasing maneuvers completed in Orbit 212.
3. Interim value - orbit adjust program commenced 2 Nov 1977 was in process.
4. Orbit adjust program completed 2 February 1978.



FOLDOUT FRAME

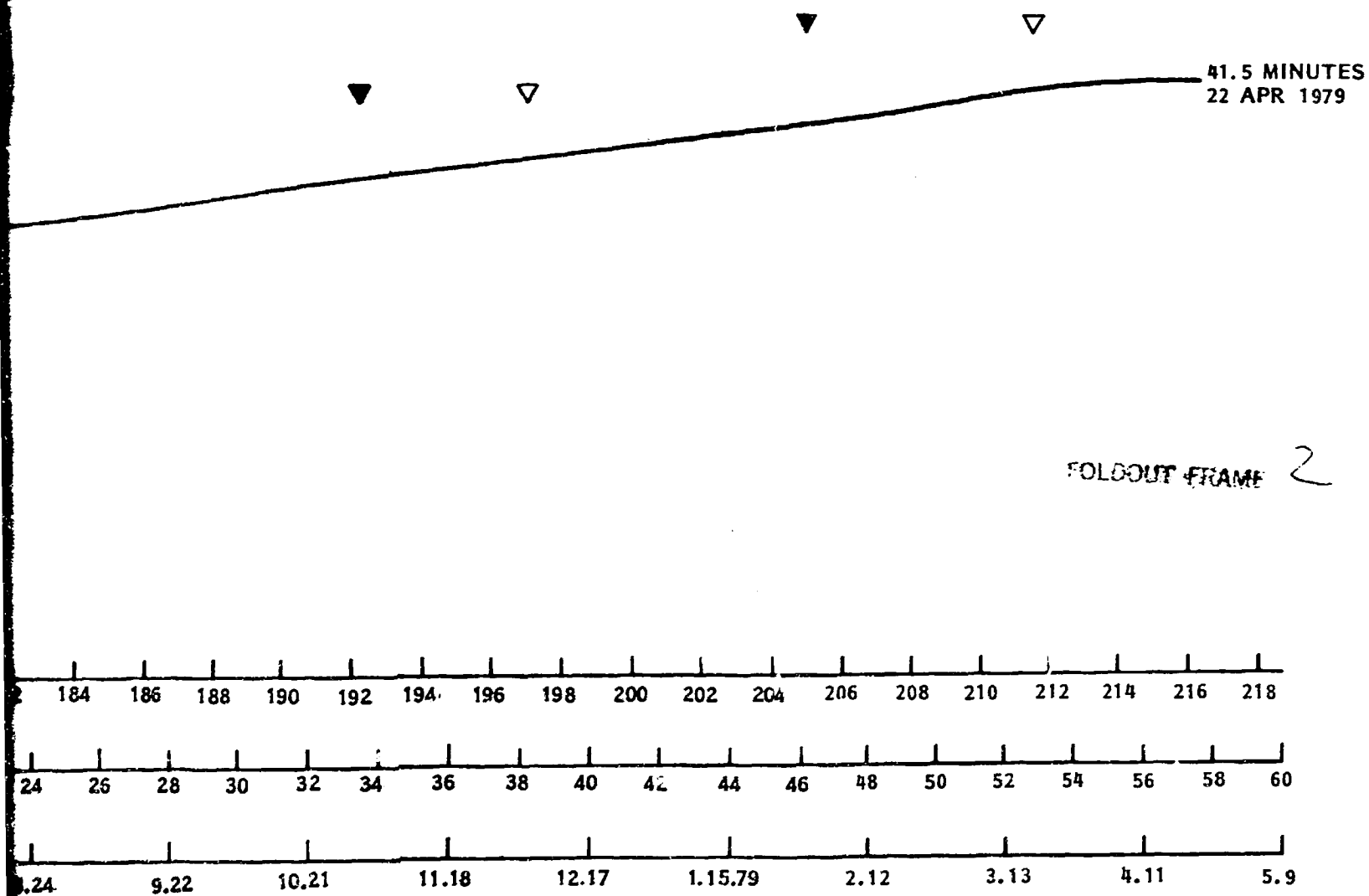


Figure 2-3. Drift in Angular Phasing  
Between Landsat-2 and 3

### SECTION 3

#### POWER SUBSYSTEM (PWR)

The Power Subsystem on Landsat-2 has performed satisfactorily throughout this report period.

The solar arrays continued to provide excess energy above spacecraft and payload requirements and are expected to support the Landsat-2 mission through 1979. The percentage degradation of the arrays is plotted as a function of days-in-orbit in Figure 3-1, along with the pre-launch predicted array degradation. The array degradation at the end of 51 months in orbit was 22.1% which is higher than predicted. The actual values of midday array current are plotted in Figure 3-2.

The battery packs on-line ranged from 10.0 to 10.5% depth of discharge (DOD) during this report period. When any battery reached high charge-to-discharge current ratios (C/D) it was turned OFF for a restoration cycle of a few weeks, leaving 6 batteries on-line at all times. The history of these restoration cycles is shown in Table 3-1. All battery-pack performance remained satisfactory. Battery voltages have been maintained within suitable limits with Landsat-2 power management procedure, excess array energy being dissipated through auxiliary loads. Temperatures ranged from 16.3°C to 28.8°C during this report period.

The power subsystem electronics have performed well during this report period with all regulated voltage stable. Table 3-2 shows major subsystem parameters and Table 3-3 shows power subsystem telemetry for selected orbits. Some parameters in Table 3-2 may be slightly different from those in Table 3-3 because Table 3-2 uses a power management time span (night followed by day), whereas the time span used in Table 3-3 is the playback period from the NBR.

The shunt limiter on Landsat-2 has operated several times since launch and has held the solar array bus voltage at specified levels.

Figure 3-3 shows the actual variation in sun angle to orbit plane and solar panels for Landsat-2. Figure 3-4 is a prediction of the sun angle through mid 1979 for Landsat-2.

Many orbits have again displayed the characteristics of notching in the array current telemetry. This condition is presumed to be sets of parallel solar cells with intermittent electrical connections, probably located where temperature extremes exist. The phenomenon occurred last year also.



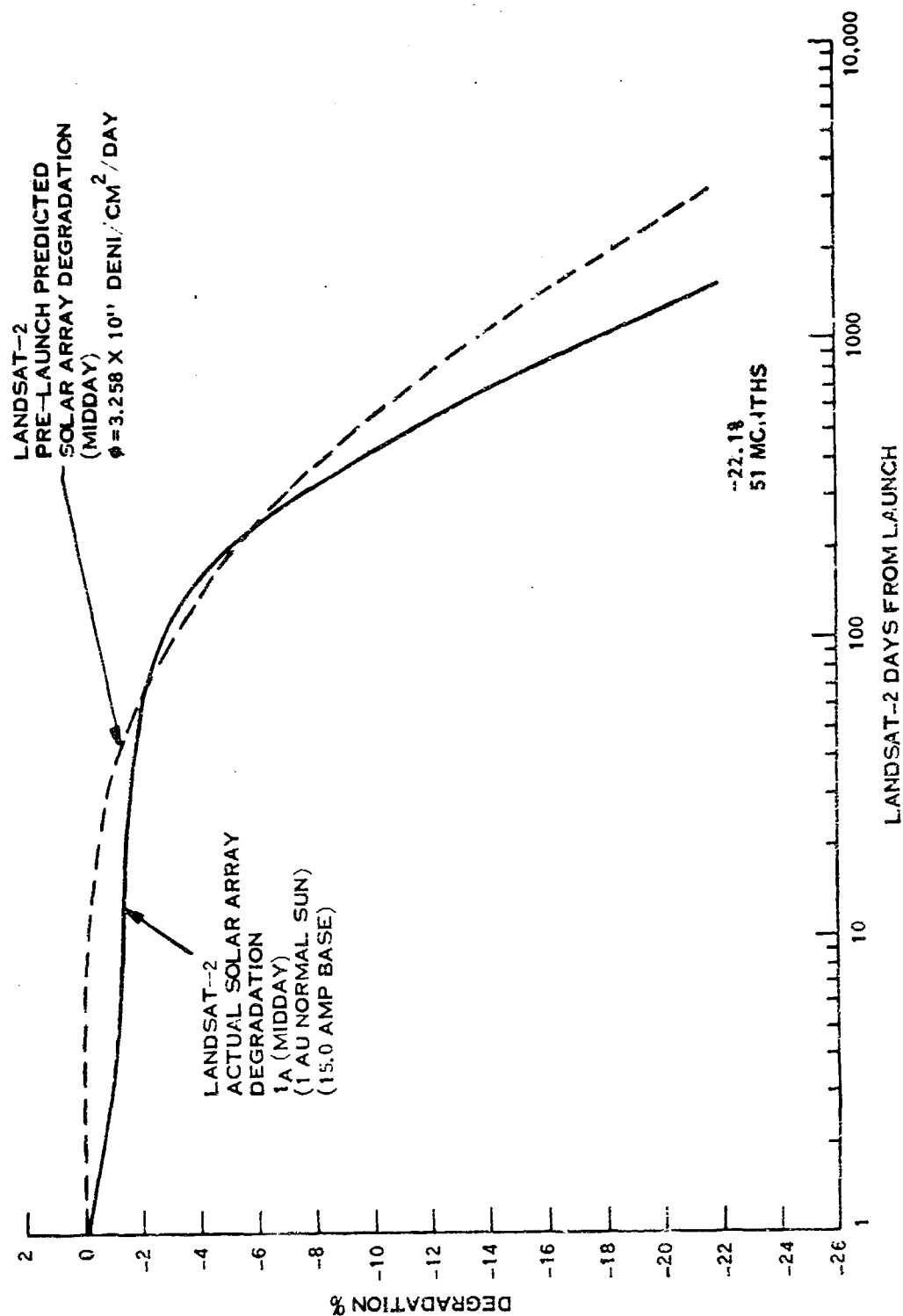
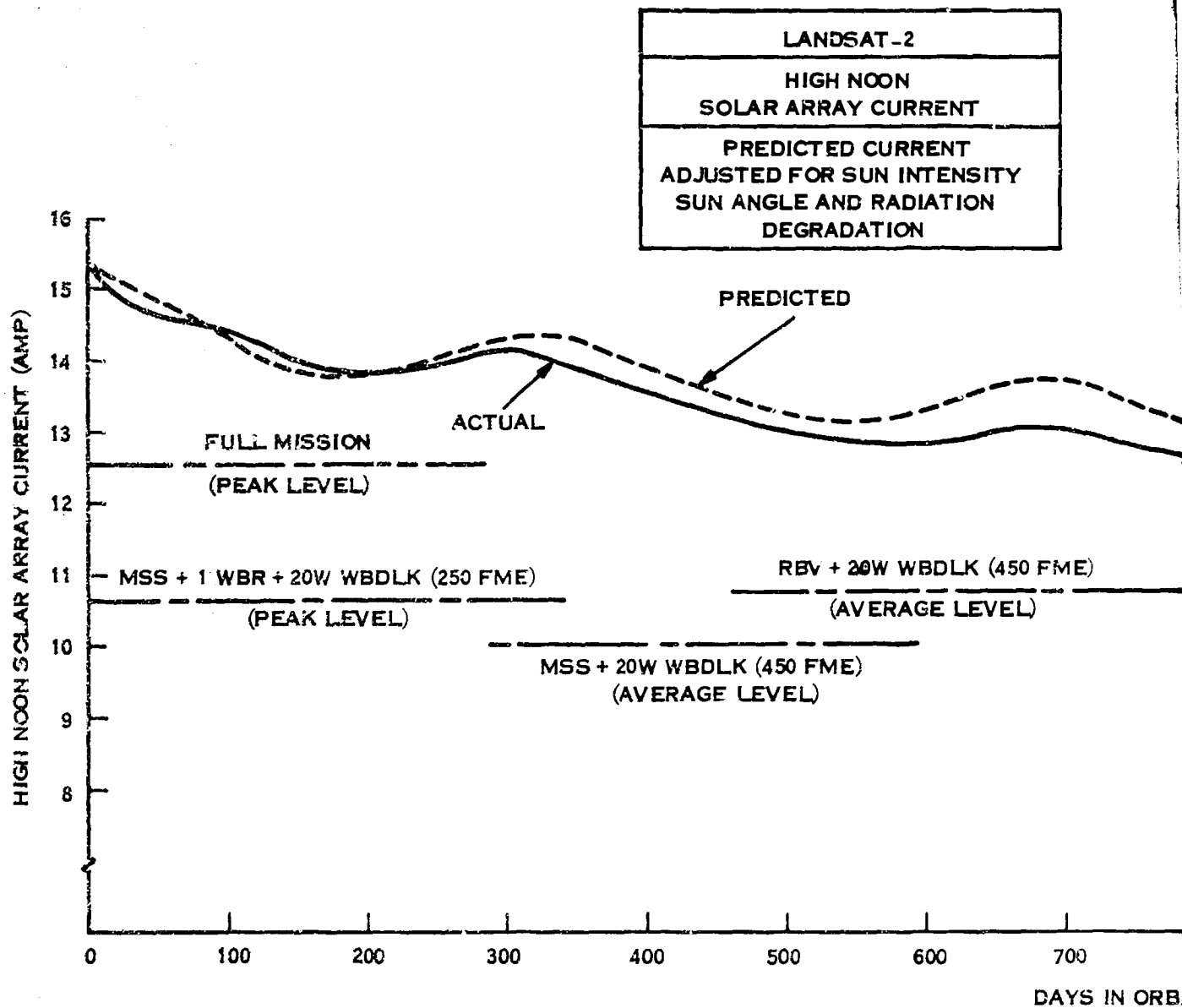


Figure 3-1. Landsat-2 Midday Solar Array Degradation vs. Days from Launch



FOLDBOUT FRAM

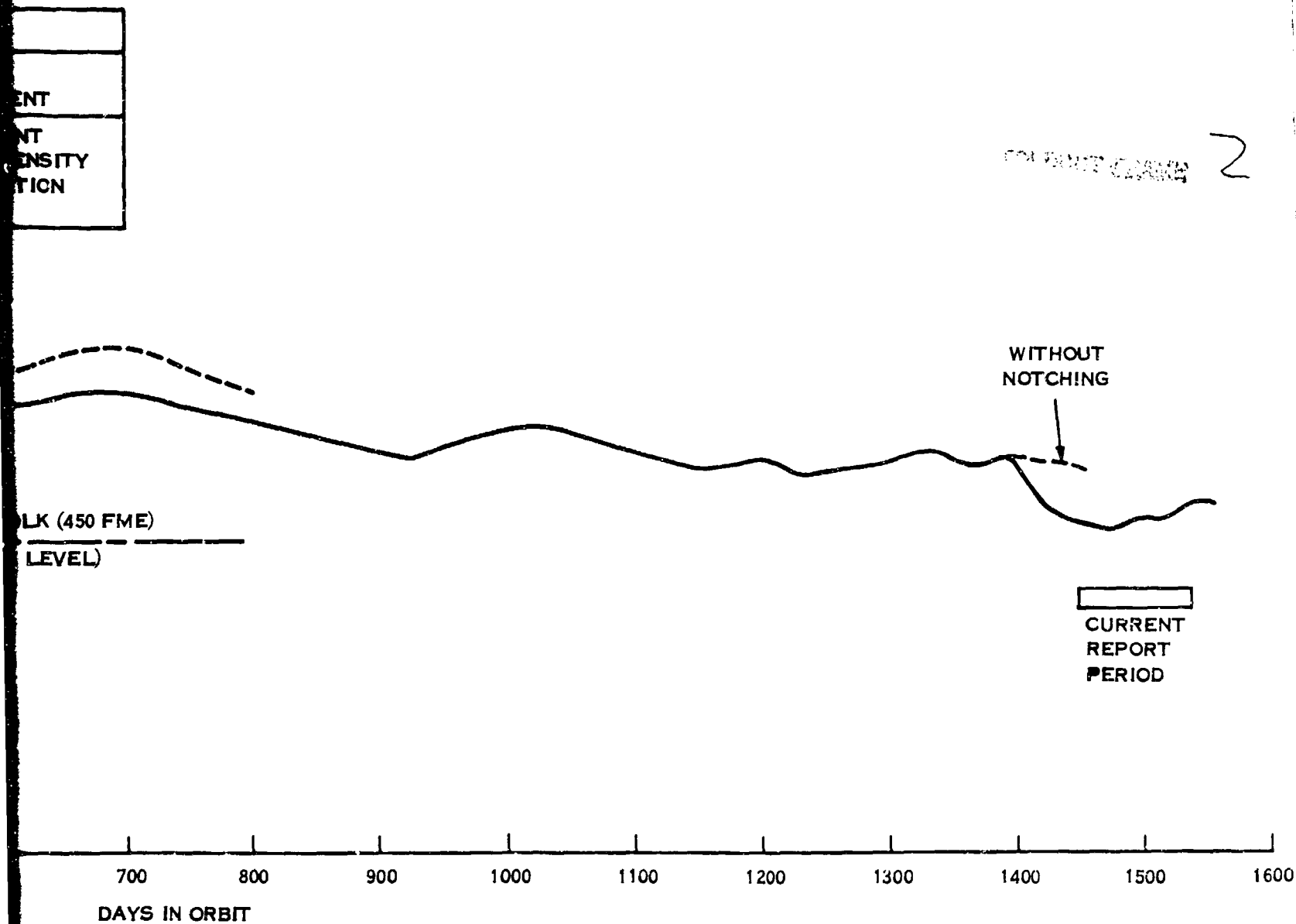


Figure 3-2. Landsat-2 Midday Solar Array Current

			1	2	3	4	5	6	7	8	9	10
BATT. 1	OFF	ORB DATE	8029 8-20-76	11420 4-20-77	12562 7-11-77	13580 9-22-77	14870 12-24-77	17851 7-27-78	19791 12-11-78	20240 1-13-79		
	ON	ORB DATE	8509 9-23-76	11947 5-28-77	12964 8-9-77	13670 9-29-77	15048 1-5-78	18088 8-11-78	19945 12-22-78	20434 1-27-79		
BATT. 2	OFF	ORB DATE	12078 6-6-77	18279 8-25-78								
	ON	ORB DATE	12272 6-20-77	18942 10-12-78								
BATT. 3	OFF	ORB DATE										
	ON	ORB DATE										
BATT. 4	OFF	ORB DATE										
	ON	ORB DATE										
BATT. 5	OFF	ORB DATE	10249 1-26-77	15297 1-23-78	19945 12-22-78	20614 3-9-79						
	ON	ORB DATE	10657 2-24-77	15354 2-2-78	20236 1-13-79	21005 3-9-79						
BATT. 6	OFF	ORB DATE	7601 7-20-76	8591 10-29-76	9652 12-7-76	10962 3-18-77	11993 5-31-77	12271 6-20-77	12965 8-9-77	13454 9-13-77	13677 9-29-77	14230 11-8-77
	ON	ORB DATE	7992 8-17-76	9164 11-9-76	10028 1-10-77	11311 4-12-77	12077 6-6-77	12532 7-9-77	13159 8-23-77	13486 9-15-77	13836 10-10-77	14326 11-15-77
BATT. 7	OFF	ORB DATE	13489 9-16-77	13959 10-19-77	18098 8-12-78	19900 12-14-78	20237 1-12-79	20240 1-13-79				
	ON	ORB DATE	13570 9-21-77	14159 11-3-77	18277 8-25-78	20002 12-27-78	20238 1-12-79	20614 2-9-78				
BATT. 8	OFF	ORB DATE	13161 8-23-77	19339 11-9-78								
	ON	ORB DATE	13444 9-12-77	19737 12-8-78								

Table 3-1. Landsat-2 Battery Restoration Cycle

8	9	10	11	12	13	14	15	16	17	18	19	20	21
20240 -13-79													
20434 -27-78													
13454 -13-77	13677 9-29-77	14230 11-8-77	14571 12-2-77	14710 12-12-77	15354 2-2-78	15963 3-13-78	17696 7-14-78	18265 8-24-78	18279 8-25-78	19203 10-30-78	19791 12-11-78	19998 12-26-78	
13486 -15-77	13836 10-10-77	14325 11-15-77	14615 12-5-77	14755 12-15-77	15550 2-10-78	15125 3-24-78	17840 7-24-78	18277 8-25-78	18436 8-5-78	19332 11-8-78	19878 12-18-78	20238 1-13-79	

FOLDOUT FRAME

2

Table 3-2. Landsat-2 Major Power Subsystem Parameters

Pwr. Mgmt. Orbit No.	ORBIT								
	50	5100	10192	15211	17711	20252	20673	21076	21466
Batt 1 Max	33.43	32.66	32.67	32.48	33.17	F	32.40	32.57	32.57
2 Chge	33.40	32.63	32.54	32.46	33.23	32.80	32.37	32.54	32.54
3 Volts	33.35	32.57	32.57	32.41	33.26	32.92	32.41	32.57	32.57
4	33.45	32.68	32.59	32.51	33.28	32.85	32.43	32.59	32.59
5	33.42	32.65	32.56	32.56	33.33	32.91	F	32.56	32.56
6	33.41	32.64	32.56	F	F	32.80	F	F	F
7	33.45	32.68	32.59	32.51	33.28	F	32.42	32.59	32.59
8	33.45	32.68	32.59	32.50	33.27	32.93	32.42	32.59	32.59
Average	33.42	32.65	32.57	32.50	32.67	32.89	32.41	32.57	32.57
Batt 1 End-of-Night	29.32	29.06	28.98	28.55	28.98	F	28.46	28.46	28.29
2 Volts	29.38	29.04	28.95	28.61	28.95	28.95	28.44	28.44	28.27
3	29.32	29.07	28.89	28.64	28.98	28.89	28.46	28.46	28.30
4	29.34	29.09	28.91	28.57	29.00	28.91	28.40	28.49	28.23
5	29.40	29.06	29.97	28.63	28.97	28.97	F	28.46	28.29
6	29.31	28.96	28.88	F	28.54	28.88	F	F	F
7	29.34	29.03	29.00	28.65	29.00	F	28.48	28.48	28.31
8	29.34	29.00	28.91	28.57	29.00	28.91	28.40	28.48	28.31
Average	29.34	29.04	28.94	28.40	28.93	28.92	28.44	28.47	28.29
Batt 1 Chge	12.76	21.43	13.74	15.00	18.33	F	17.96	15.70	15.95
2 Share	11.60	11.42	11.44	13.67	14.37	16.86	16.10	14.26	14.61
3 (%)	12.24	12.48	12.41	13.64	13.90	15.81	15.32	13.16	13.56
4	11.99	11.76	11.81	13.55	13.30	14.82	14.58	12.52	12.68
5	12.84	13.24	12.95	14.48	12.41	17.25	F	14.61	13.31
6	13.35	14.32	15.14	F	F	17.57	F	F	F
7	12.90	12.97	11.74	14.88	13.76	F	17.88	14.71	14.26
8	12.24	11.38	10.77	13.78	12.99	15.79	16.38	14.20	14.66
Batt 1 Load	12.60	11.80	11.16	14.84	13.08	F	15.33	12.50	12.88
2 Share	12.70	13.34	14.14	15.41	16.01	18.96	18.77	16.95	17.20
3 (%)	12.67	13.74	15.94	13.80	15.98	16.90	18.86	14.42	14.77
4	12.44	12.48	13.00	13.80	15.05	15.24	15.51	13.38	13.76
5	12.34	12.36	9.96	13.80	13.33	16.8	F	15.50	14.22
6	12.70	11.56	15.27	F	F	17.01	F	F	F
7	12.47	12.70	11.33	14.46	13.00	F	18.59	14.89	14.79
8	12.04	12.02	11.21	13.88	13.64	15.01	14.92	12.30	12.38
Batt 1 Temp	21.46	21.94	22.71	21.78	22.74	20.67	22.48	22.04	21.76
2 in	20.25	19.94	20.30	19.60	20.34	19.77	19.15	19.22	19.27
3 (°C)	18.60	17.86	17.52	17.22	16.96	17.35	16.31	16.00	16.29
4	20.83	20.36	20.36	20.97	19.79	20.46	20.16	19.61	19.74
5	24.98	27.27	30.49	34.34	22.37	28.47	26.56	26.32	23.06
6	24.26	27.28	27.60	30.39	21.16	26.72	26.47	24.22	21.68
7	24.71	26.00	27.01	29.28	23.79	25.65	26.74	25.21	23.60
8	23.60	24.41	24.55	25.66	22.66	24.50	25.31	24.27	23.70
Average	22.34	23.17	23.83	25.90	21.23	22.95	23.15	22.11	21.14
S/C Reg Bus Pwr. (W)	N	149.30	154.49	143.60	132.3	125.20	126.2	132.3	140.1
Comp Load Pwr. (W)	N	24.80	6.64	0.00	0.00	0.00	0.0	0.0	0.0
P/L Reg Bus Pwr. (W)	N	9.8	9.59	9.90	9.5	9.31	9.6	15.7	9.6
C/D Ratio	1.15	1.11	1.24	1.46	1.36	1.20	1.12	1.23	1.22
Total Charge (A-M)	271.90	223.46	223.51	243.06	258.43	201.56	193.15	244.79	236.32
Total Discharge (A-M)	237.20	201.45	180.84	166.79	190.09	168.22	172.48	198.97	193.16
Solar Array (A-M)	1106	1003	939	821.90	829.3	825.4*	822.2*	817.4*	816.0*
S.A. Peak I (Amp)	16.05	14.43	13.25	11.99	12.24	12.39	12.24	12.39	12.24
Midday Array I (Amp)	N	13.72	12.86	11.92	11.61	10.99*	11.06*	10.99*	11.30*
Sun Angle (Deg)(γ)	N	8.35	10.70	14.80	2.35	9.71	11.40	9.04	4.29
Max R Pad Temp (°C)	N	63.20	58.40	53.27	55.09	+59.60	58.40	58.40	57.20
Min R Pad Temp (°C)	N	-35.00	-34.40	-36.80	-37.40	-32.60	-33.20	-33.20	-35.00
Max L Pad Temp (°C)	N	62.15	62.15	56.92	56.92	+62.15	60.00	60.00	57.69
Min L Pad Temp (°C)	N	-42.14	-39.43	-38.86	-44.29	-36.86	-38.29	-39.43	-42.14

N - Data Not Available

F - Unit Off

\*Intermittent Temperature Sensitive Dropouts Present

Table 3-3. Landsat-2 Power Subsystem Analog Telemetry  
(Average Value for Data Received in NBTR Playback)

Func	Description	Unit	Orbits								
			50	5102	10192	15211	17711	20252	20673	21076	21468
6001	Batt 1 Disc I	Amp	1.01	0.74	0.52	0.66	0.70	F	0.89	0.87	0.67
6002	2		1.01	0.84	0.55	0.71	0.84	1.12	1.14	0.90	0.90
6003	3		1.00	0.87	0.64	0.62	0.85	0.98	1.00	0.75	0.77
6004	4		1.00	0.78	0.60	0.63	0.80	0.90	0.92	0.69	0.71
6005	5		0.99	0.78	0.47	0.63	0.71	0.98	F	0.81	0.74
6006*	6		1.03	0.73	0.70	F	F	0.29	F	F	F
6007	7		1.00	0.80	0.52	0.66	0.69	F	1.09	0.78	0.77
6008	8		0.97	0.75	0.52	0.52	0.72	0.87	0.88	0.63	0.64
6011	Batt 1 Chg I	Amp	0.47	0.42	0.46	0.52	0.72	F	0.48	0.56	0.52
6012	2		0.43	0.38	0.37	0.47	0.56	0.45	0.44	0.51	0.47
6013	3		0.45	0.42	0.40	0.47	0.54	0.43	0.41	0.47	0.44
6014	4		0.44	0.39	0.39	0.48	0.51	0.40	0.39	0.44	0.41
6015	5		0.47	0.44	0.45	0.51	0.48	0.47	F	0.52	0.43
6016*	6		0.49	0.47	0.49	F	F	0.47	F	F	F
6017	7		0.47	0.43	0.40	0.52	0.53	F	0.48	0.52	0.46
6018	8		0.45	0.38	0.36	0.49	0.50	0.43	0.44	0.50	0.48
6021	Batt 1 Volt	VDC	31.50	31.11	30.79	30.71	31.28	F	30.89	30.89	30.73
6022	2		31.48	31.09	30.80	30.68	31.30	31.28	30.88	30.89	30.73
6023	3		31.49	31.10	30.81	30.70	31.33	31.30	30.90	30.90	30.75
6024	4		31.49	31.10	30.81	30.70	31.33	31.30	30.90	30.90	30.75
6025	5		31.50	31.11	30.79	30.73	31.34	31.31	F	30.92	30.76
6026*	6		31.49	31.08	30.80	F	F	31.31	F	F	F
6027	7		31.52	31.14	30.83	30.74	31.35	F	30.94	30.94	30.77
6028	8		31.49	31.11	30.81	30.71	31.33	31.30	30.89	30.89	30.73
6031	Batt 1 Temp	DGC	21.59	21.91	22.67	21.73	22.79	20.66	22.45	22.05	21.88
6032	2		20.83	19.90	20.36	19.51	20.38	19.74	19.25	19.14	19.33
6033	3		18.80	17.77	17.54	17.06	17.02	17.34	16.29	15.93	16.28
6034	4		20.96	20.33	20.43	20.94	19.83	20.48	20.15	19.56	19.73
6035	5		25.16	27.18	30.52	34.20	22.38	28.47	28.56	26.28	23.10
6036	6		24.37	27.19	27.67	30.32	21.15	26.12	26.45	24.26	21.76
6037	7		24.83	26.19	26.95	29.20	23.81	25.64	26.73	25.21	23.64
6038	8		23.75	24.36	24.49	25.63	22.70	24.53	25.28	24.28	23.78
6040	Rt. Pad Temp	DGC	28.96	36.80	26.11	24.98	22.58	28.46	27.84	30.40	26.75
6041	Rt. Pad VM	VDC	33.72	32.86	31.44	30.53	33.37	32.45	31.61	31.89	32.50
6042	Rt. Pad VN	VDC	33.46	32.44	31.27	21.60	32.41	32.04	31.50	32.49	31.68
6044	Lt. Pad Temp	DGC	25.56	28.22	26.41	27.99	21.32	29.07	29.58	31.29	25.33
6045	Lt. Pad VF	VDC	33.10	33.82	33.36	33.24	34.25	34.13	33.64	33.56	35.51
6046	Lt. Pad VG	VDC	34.48	33.91	33.45	33.32	34.34	34.21	33.72	33.65	33.63
6050	S/C UR Bus V	VDC	31.73	31.33	30.93	30.99	31.53	31.56	31.17	31.12	30.91
6051	S/C RG Bus V	VDC	24.57	24.58	24.57	24.58	24.58	24.58	24.58	24.58	24.57
6052	Aux Reg AV	VDC	23.36	23.44	23.44	23.44	23.44	23.45	23.45	23.44	23.44
6053	Aux Reg BV	VDC	23.37	23.44	23.43	23.44	23.44	23.45	23.45	23.44	23.44
6054	Solar I	Amp	14.81	13.40	12.25	10.57	11.31	10.94	10.76	10.95	11.16
6056	S/C RG Bus I	Amp	7.23	6.28	6.41	5.86	5.40	5.11	5.21	5.62	5.79
6058	PC Mod T1	DGC	21.67	20.77	20.08	20.37	19.42	19.60	18.64	18.99	19.53
6059	PC Mod T2	DGC	20.44	19.56	19.16	18.94	18.69	18.75	17.88	17.72	18.21
6070	P/L RG Bus V	VDC	24.61	24.00	24.59	24.59	24.61	24.62	24.59	24.60	24.59
6071	P/L UR Bus V	VDC	31.85	31.40	30.97	31.03	31.63	31.65	31.22	31.17	30.96
6073	P Aux AV	VDC	23.47	23.51	23.50	23.50	23.50	23.50	23.51	23.51	23.50
6074	P Aux BV	VDC	23.46	23.51	23.50	23.50	23.50	23.50	23.51	23.51	23.50
6075	PR Mod T1	DGC	20.84	20.32	20.82	20.23	20.30	20.02	19.32	19.58	19.67
6076	PR Mod T2	DGC	22.13	21.79	22.14	21.77	21.82	21.92	21.10	21.21	21.35
6079	Fuse Blow V	VDC	24.48	24.49	24.48	24.49	24.48	24.48	24.47	24.47	24.47
6080	Shunt 1 I	Amp	0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6081	2		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6082	3		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6083	4		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6084	5		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6085	6		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6086	7		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6087	8		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0
6100	P/L RG Bus I	Amp	0.38	0.54	0.40	0.41	0.39	0.39	0.48	0.56	0.56
Total No. Major Frames		Frm	396	785	697	725	690	394	785	727	708

\*Intermittent Temperature Sensitive Dropout Present

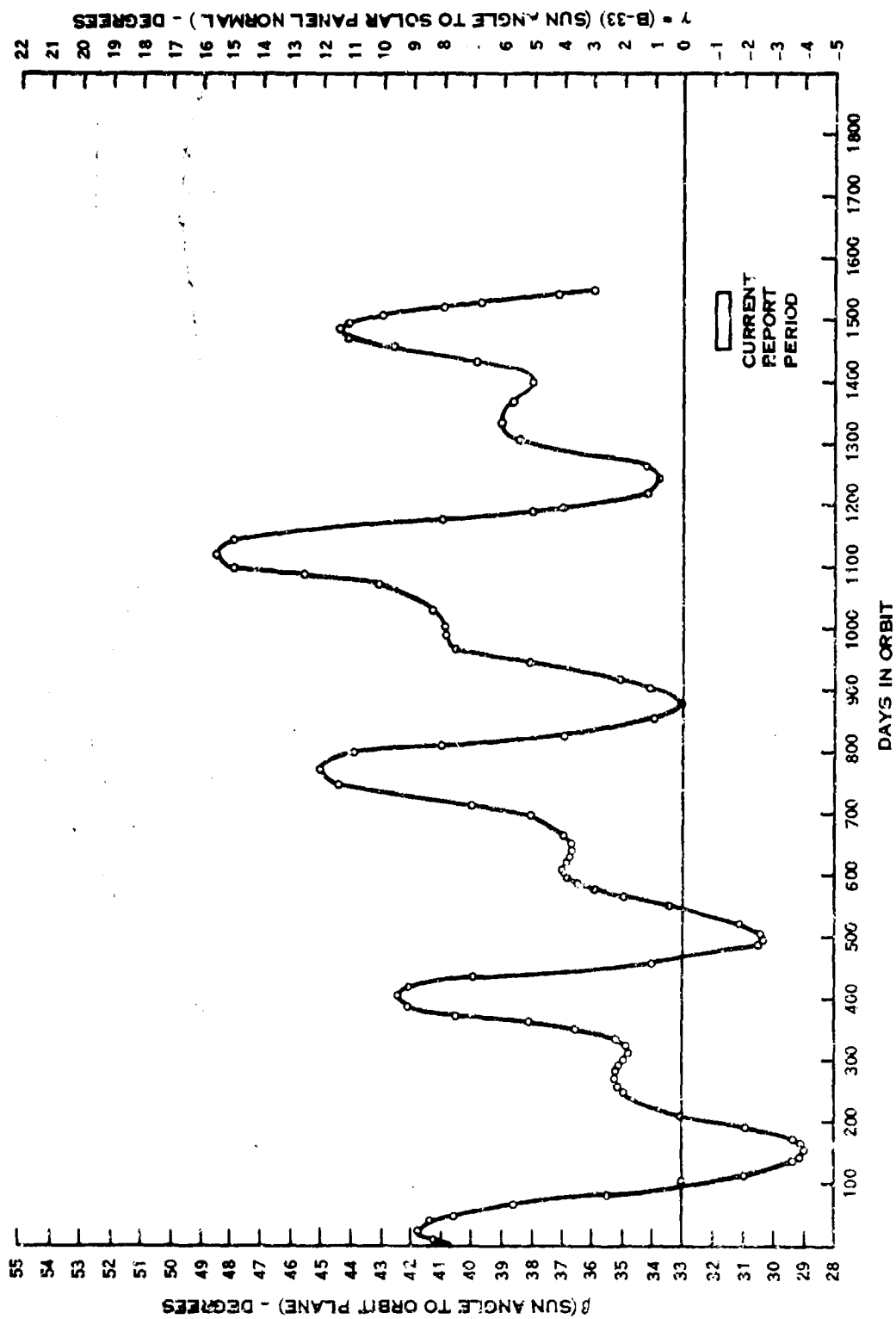


Figure 3-3. Landsat-2 Actual  $\beta$  (Orbit Plane) and  $\alpha$  (Solar Panel) Sun Angles



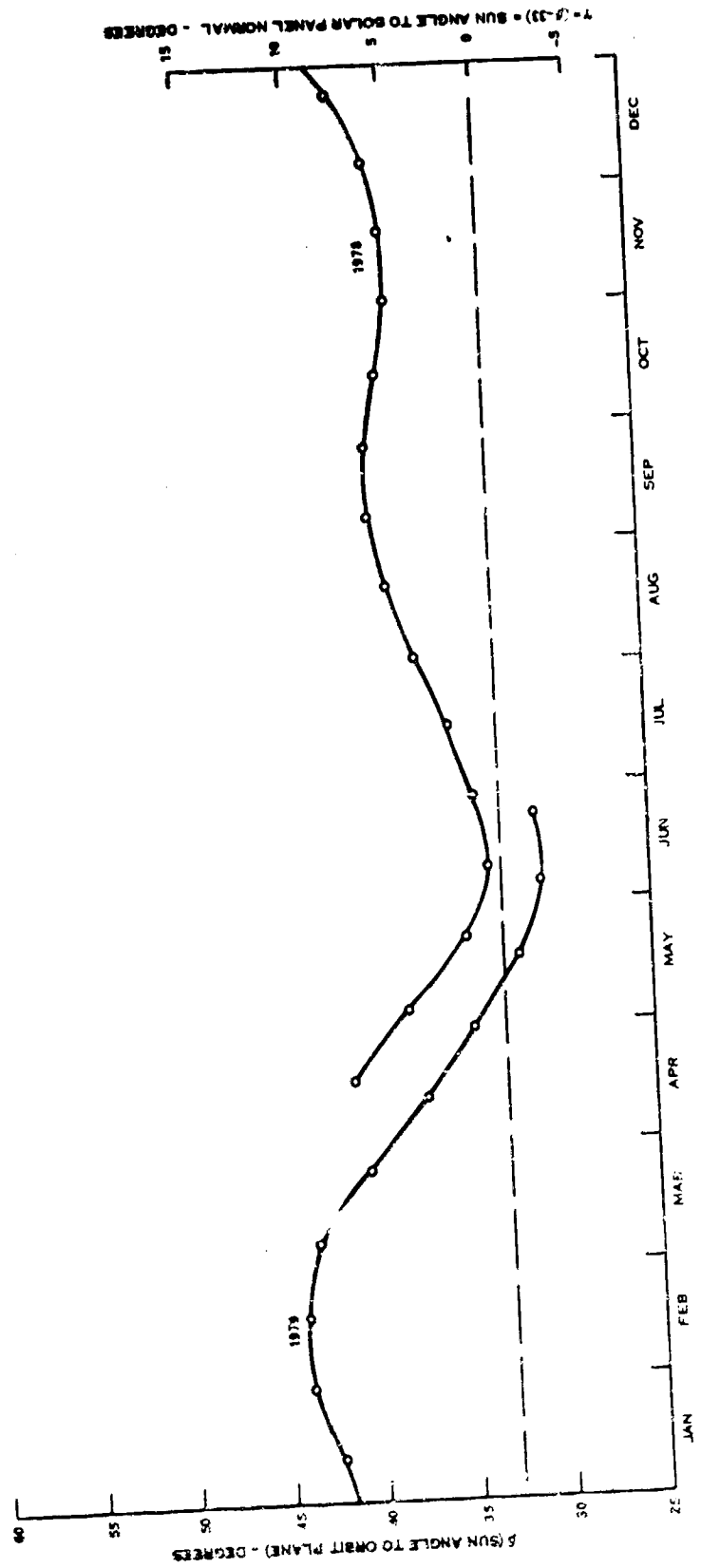


Figure 3-4. Predicted Beta Angle for LS-2

## SECTION 4

### ATTITUDE CONTROL SYSTEM (ACS)

Landsat 2's Attitude Control System has performed normally since launch and has consistently maintained correct spacecraft attitude.

In order to conserve freon, Pitch Position Bias is implemented - via COMSTOR - during spacecraft night to unload or reduce Pitch Flywheel speed and thus prevent Pitch gating.

To unload Roll Wheel momentum, 2 to 3 pneumatic momentary enables are included in the COMSTOR during earth night.

Table 4-1 shows the bias sequences maintained during this report period.

The failure of NER-A in Orbit 20267 (15 January 1979) precludes continuous monitoring of the ACS's pneumatic gating activity, consequently, the pneumatic gating summary and gating profile curves (normally published in each quarterly report) are discontinued.

Freon life expectancy is plotted in Figure 4-1.

An orbit adjust (see Section 7) was conducted in Orbit 20514 (1 February 1979) with the ACS in the Orbit Adjust mode and with pneumatics enabled. Spacecraft attitude was maintained during the maneuver without event. During this orbit adjust RMP 1 was exercised in the backup mode to the controlling RMP 2.

Flywheel duty cycles remained low (3 to 8 percent) and dual scanner operation is normal.

Both SADS are tracking the sun and their motor voltage and tachometer signatures are normal.

Subsystems temperatures, pressures, voltages and currents have all been normal as shown in the telemetry summary, Tables 4-2, 4-3 and 4-4.

Table 4-1. Landsat-2 Pitch Position Bias Quarterly Summary

Period		PPB Implementation Sequence			Minutes Positioned About Satellite Midnight $T_o$	
From Orbit	To Orbit	$N_o^*$	$N_o + 1$	$N_o + 2$	From	To
20294 16 Jan 79	20918 2 Mar 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 23$	$T_o - 5$
20919 2 Mar 79	20989 7 Mar 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 23$	$T_o - 2$
20990 7 Mar 79	21406 6 Apr 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 21$	$T_o - 2$
21407 6 Apr 79	21418 7 Apr 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 23$	$T_o - 2$
21419 7 Apr 79	21476 11 Apr 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 25$	$T_o - 2$
21477 11 Apr 79	21574 18 Apr 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 25$	$T_o + 1$
21575 18 Apr 79	21645 23 Apr 79	$+2.9^0$	$+2.9^0$	$+2.9^0$	$T_o - 25$	$T_o + 4$

\* $N_o$  Equals Satellite Night

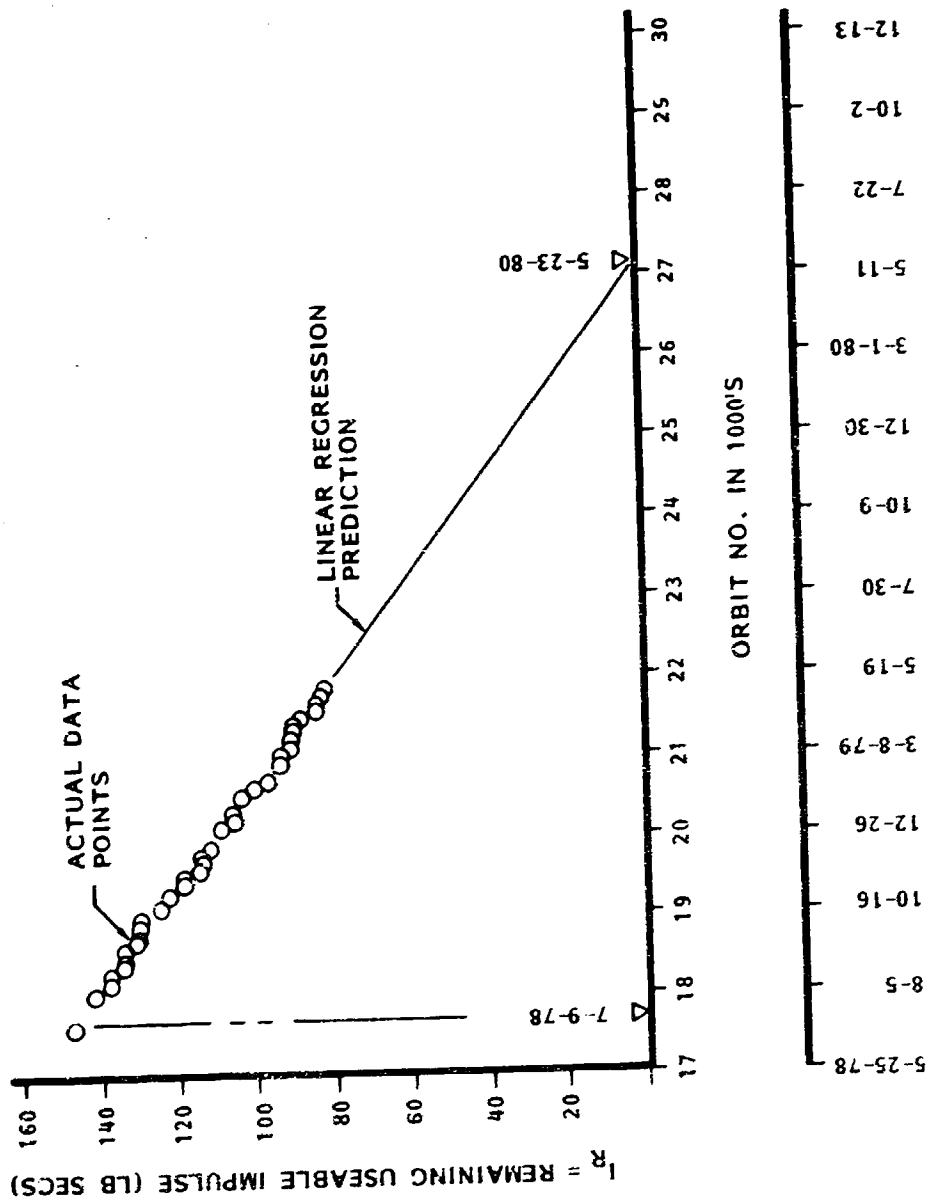


Figure 4-1. Landsat-2 Freeon Life Expectancy

Table 4-2. Landsat-2 ACS Subsystem Temperature and Pressure Average

Func	Name	Units	Orbits								
			29	5103	10191	15211	17711	20253	20473	21076	21466
1084	RMP 1 Cyro Temperature	DGC	19.33 <sup>(1)</sup>	22.69	22.70	20.21 <sup>(3)</sup>	23.32	24.30	23.18	23.57	24.49
1094	RMP 2 Cyro Temperature	DGC	70.00	74.26	74.50	65.14	64.30	64.23	64.10	64.09	64.23
1222	SAD RT MTR HSG Temp.	DGC	19.50	22.98	22.73	20.08	24.41	24.45	23.48	23.93	25.34
1242	SAD LT MTR HSG Temp.	DGC	28.87	29.79	30.26	28.17	30.19	31.71	31.10	31.13	31.47
1223	SAD RT MTR WNDNG Temp.	DGC	21.76	24.36	23.72	20.87	25.90	25.31	24.32	24.85	26.72
1243	SAD LT MTR WNDNG Temp.	DGC	30.23	32.03	33.15	30.47	32.90	34.69	34.02	34.01	34.48
1228	SAD RT HSG Pressure	PSI	7.28	7.18	7.00	6.77	6.77	6.77	6.76	6.70	6.70
1248	SAD LT HSG Pressure	PSI	7.28	7.21	6.91	6.48	6.48	6.36	6.30	6.24	6.23
1007	FWD Scanner MTR Temp.	DGC	22.07	23.80	23.97	21.18	24.09	25.04	24.31	24.51	25.25
1016	Rear Scanner MTR Temp.	DGC	24.19	25.04	24.83	22.87	25.14	26.11	25.39	25.63	26.32
1003	FWD Scanner Pressure	PSI	9.59 <sup>(2)</sup>	D	D	D	D	D	D	D	D
1012	Rear Scanner Pressure	PSI	6.21	5.62	5.11	4.47	4.42	4.09	4.09	4.09	4.06
1212	Gas Tank Pressure	PSI	1948.00	1517.04	1256.98	843.19 <sup>(4)</sup>	701.80	554.94	517.94	452.79	401.96
1210	Gas Tank Temperature	DGC	20.66	24.75	24.43	22.25	24.86	26.00	25.15	25.33	25.78
1213	Manifold Pressure	PSI	53.98	54.56	55.26	54.49	56.88	57.47	57.59	57.51	57.93
1211	Manifold Temperature	DGC	19.18	22.59	22.78	20.51	22.98	24.35	23.39	23.55	24.11
1069	CLB Power Supply Card Temp	DGC	39.00	41.47	41.81	39.83	41.91	42.84	42.50	42.46	42.72
1260	TH01 EBP	DGC	24.29	27.21	27.58	25.58	27.55	29.07	28.46	28.46	28.87
1261	TH02 EBP	DGC	20.29	23.25	23.48	21.32	23.77	24.98	24.34	24.42	25.02
1242	TH03 EBP	DGC	18.29	21.46	21.29	18.99	22.26	22.91	21.96	22.43	23.30
1263	TH01 STS	DGC	6.54	0.52	- 1.66	- 3.67	- 1.07	1.52	0.03	0.64	1.00
1264	TH02 STS	DGC	D	D	D	D	D	D	D	D	D
1265	TH03 STS	DGC	8.46	8.67	11.66	9.78	8.07	13.54	14.11	13.14	10.82
1266	TH04 STS	DGC	- 2.79	- 3.26	- 0.06	- 3.56	- 2.37	2.63	2.09	1.66	- 0.05
1267	TH05 STS	DGC	9.82	5.57	4.24	0.97	3.27	7.23	6.65	5.78	6.11
1224	SAD R FSST	DGC	35.00	35.81	34.24	7.91 <sup>(5)</sup>	44.44	41.79	38.14	42.14	45.62
1244	SAD L FSST	DGC	50.00	49.13	55.24	52.49	54.37	58.29	57.44	57.60	57.59

- (1) RMP-1 Left off after initial test in Orbit 1  
(2) Prelaunch leak - refer to text  
(3) RMP1 in standby mode during orbit adjust maneuvers  
(4) Pressure drop due to freon consumed during orbit adjust maneuvers  
(5) Low temperature caused by large beta angle shadowing  
D Defective telemetry point

Table 4-3. Landsat-2 ACS Voltages and Currents

Func	Name	Units	Orbit								
			29	5102	10191	15211	17711	20832	20873	21076	21466
1081	RMP 1 MTR Volts	VDC	F	F	F	F	F	F	F	F	F
1082	RMP 1 MTR Current	Amps	F	F	F	F	F	F	F	F	F
1080	RMP 1 Supply Volts	VDC	F	F	F	F	F	F	F	F	F
1091	RMP 2 MTR Volts	VDC	29.99	29.92	29.87	29.90	29.89	29.88	29.89	29.99	29.97
1092	RMP 2 MTR Current	Amps	0.10	0.10	0.10	0.10	0.10	.10	0.10	0.10	0.10
1096	RMP 2 Supply Volts	VDC	23.83	23.59	23.58	23.61	23.59	23.58	23.58	23.58	23.57
1220	SAD RT MTR WNDNG Volts	VDC	5.47	4.47	4.09	4.23	4.17	4.30	4.32	4.32	4.26
1240	SAD LT MTR WNDNG Volts	VDC	5.98	4.72	4.57	4.53	4.66	4.75	4.76	4.76	4.83
1227	SAD RT -15 VDC Conv	VDC	15.14	15.16	15.15	15.18	15.12	15.12	15.12	15.12	15.12
1247	SAD LT -15 VDC Conv	VDC	15.23	15.21	15.22	15.21	15.20	15.19	15.19	15.20	15.20
1056	CLB + 6 VDC	TMV	2.35	2.38	2.40	2.40	2.40	2.40	2.40	2.40	2.40
1065	CLB + 10 VDC	TMV	2.88	2.92	2.94	2.94	2.94	2.95	2.95	2.95	2.95
1057	CLB Power Supply Volts	TMV	2.97	2.96	2.97	2.96	2.97	2.97	2.97	2.97	2.97

Table 4-4. Landsat-2 ACS Attitude Errors and Driver Duty Cycles

Func	Name	Units	Orbit									
			26	5102	10191	15211	17111	20253	20873	21076	21466	
1041	Pitch Fine Error	DEG	-0.15	-0.13	-0.22	-0.78	-1.12	-1.71*	-0.67	-0.84	-1.02*	
1043	Pitch Flywheel Speed	RPM	-156.12	-162.97	3.39	51.87	-146.47	31.41	31.67	-82.26	-144.68	
1038	Pitch Mtr Dvr CCW	PCT	6.64	6.05	4.33	1.76	8.59	3.40	3.71	5.57	8.69	
1059	Pitch Mtr Dvr CW	PCT	2.03	1.80	3.87	4.59	5.79	5.66	5.89	3.15	5.19	
1030	Roll Fine Error	DEG	-0.13	-0.14	-0.21	-0.20	-1.12	-1.17	-0.17	-0.16	-0.14	
1027	Roll Rear Flywheel SPD	RPM	729.30	748.56	792.27	786.70	752.71	770.26	777.56	770.97	768.49	
1026	Roll Fwd Flywheel SPD	RPM	703.02	735.81	737.44	787.93	748.23	740.43	768.88	736.39	768.18	
1022	Roll Rear Mtr Dvr CCW	PCT	0.67	0.63	0.87	0.01	.71	.29	0.69	0.39	0.72	
1025	Roll Rear Mtr Dvr CW	PCT	7.54	6.34	6.09	6.07	5.72	5.75	5.69	5.76	7.00	
1023	Roll Fwd Mtr Dvr CCW	PCT	0.70	0.87	0.72	0.03	.94	.64	0.65	0.40	1.04	
1024	Roll Fwd Mtr Dvr CW	PCT	5.46	4.01	4.34	3.20	3.84	3.55	3.98	3.88	4.07	
1035	Yaw Tach	RPM	-95.73	-38.16	-163.04	-34.38	-159.65	-94.37	-93.48	-38.27	-82.40	
1033	Yaw Mtr Dvr CW	PCT	1.98	2.01	1.91	1.81	1.92	1.71	2.15	1.96	2.30	
1034	Yaw Mtr Dvr CCW	PCT	2.10	1.90	2.49	1.50	2.46	1.60	2.21	1.59	2.20	
1221	SAD Right Tach	D/M	3.38	3.38	3.37	3.42	3.35	3.37	3.38	3.39	3.34	
1241	SAD Left Tach	D/M	3.68	3.56	3.48	3.55	3.52	3.47	3.47	3.47	3.55	

\*Pitch Position Bias was implemented during this Orbit.

SECTION 5  
COMMAND/CLOCK SUBSYSTEM (CMD)

The Command Clock Subsystem operated nominally in this report period.

The spacecraft clock was reset during Orbit 20825 on 16 February 1979 from 2095 ms fast to 59 ms fast.

Figure 5-1 shows the history of the spacecraft clock drift since launch. Figure 5-2 shows the cumulative clock drift. 25.167 seconds faster in 51 months; and Figure 5-3 gives drift rate of the spacecraft clock. The clock of Landsat-2 drifts in the same direction as Landsat-3. The drift rate has increased 5% in this quarter.

Table 5-1 shows typical telemetry values since launch. All are nominal.



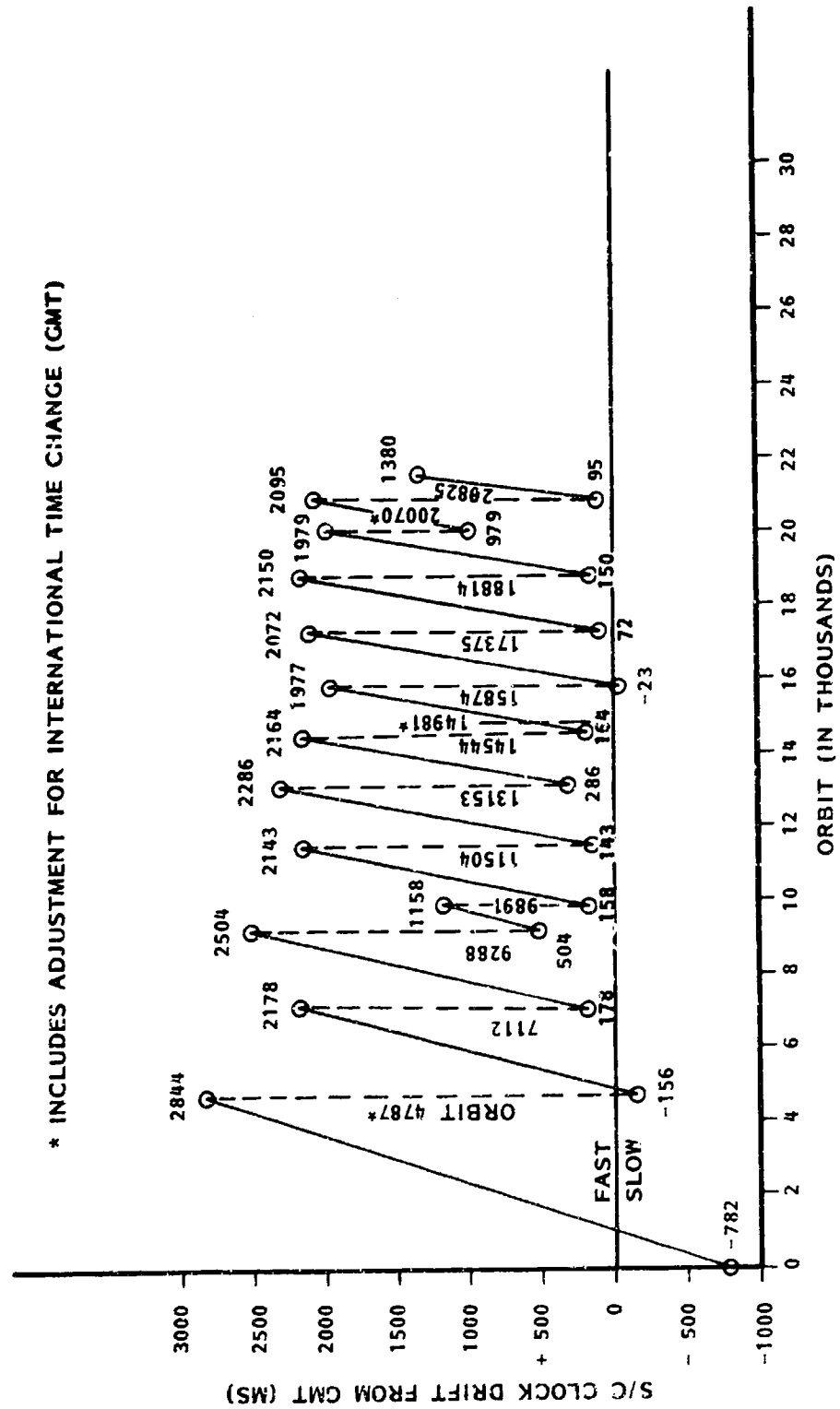


Figure 5-1. Landsat-2 Clock Drift History

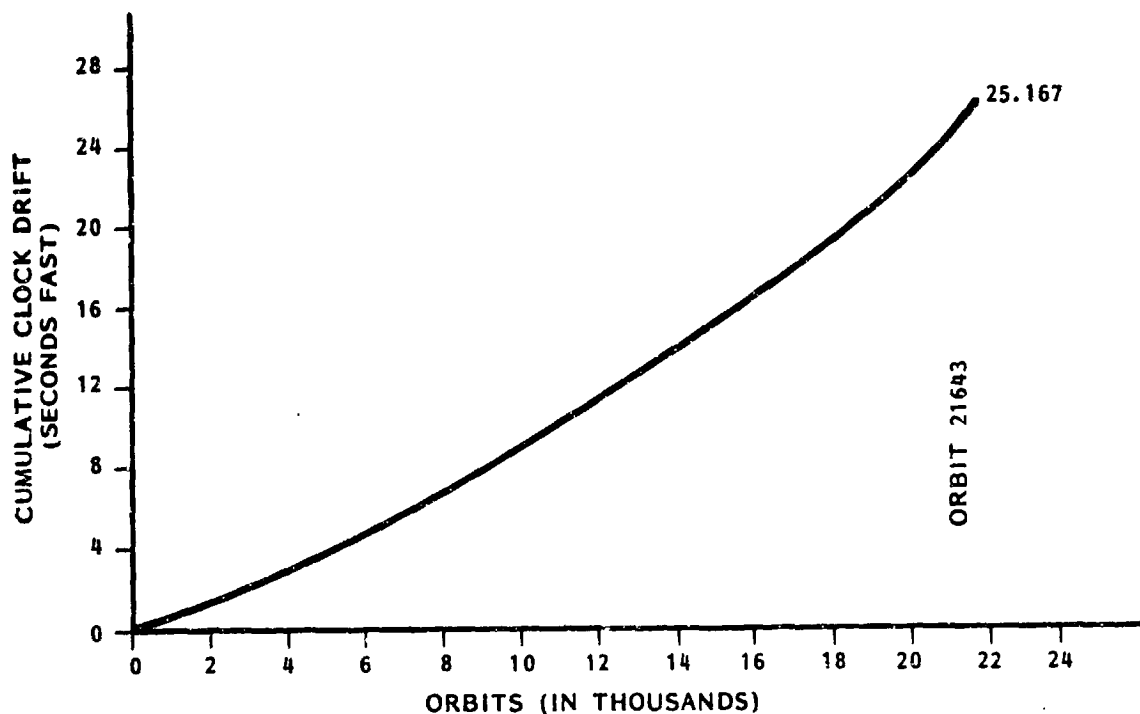


Figure 5-2. Cumulative Clock Drift

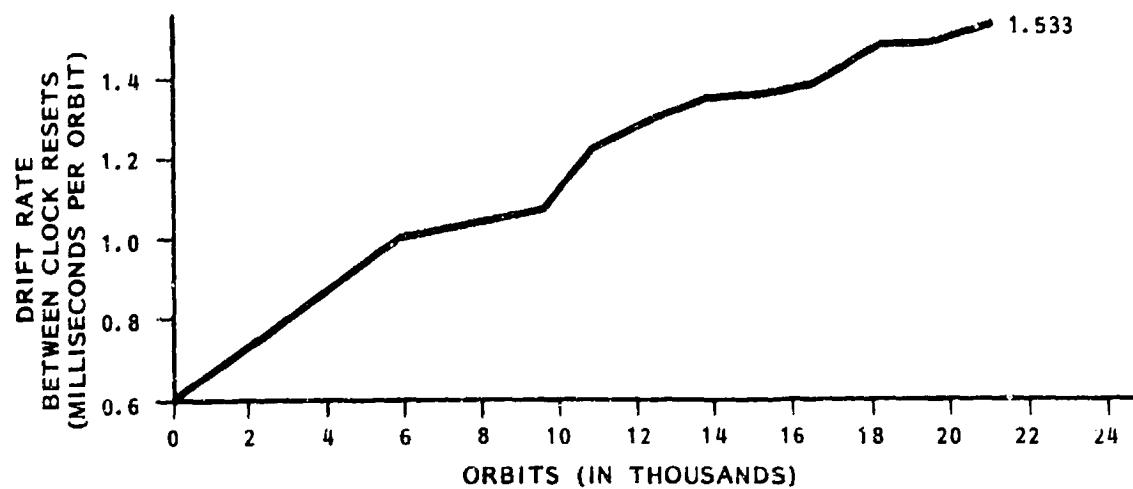


Figure 5-3. Drift Rate of S/C Clock

Table 5-1. Command/Clock Telemetry Summary, Landsat-2

Function No.	Name	Units	Orbit										21076	21466
			35	5091	10192	15211	17710	20251	20473					
8005	Pri. Power Supply Temp	DGC	38.82	35.43	39.08	39.12	39.16	39.13	38.44	38.32	39.06			
8006	Pri. Power Supply Temp	DGC	36.93	38.00	37.85	37.91	38.04	38.06	37.22	37.15	37.77			
8007	Pri. Osc. Temp	DGC	28.70	28.70	28.56	28.69	28.16	28.67	27.63	27.04	27.86			
8008	Pri. Osc. Temp	DGC	27.82	27.26	26.97	27.40	26.95	27.09	26.73	26.21	26.95			
8009	Pri. Osc. Output	TMV	1.06	1.05	1.05	1.06	1.06	1.05	1.05	1.05	1.05			
8010	Pri. Osc. Output	TMV	1.17	1.18	1.18	1.18	1.13	1.18	1.18	1.18	1.18			
8011	100 KHz	TMV	3.17	3.15	3.15	3.15	3.16	3.15	3.15	3.15	3.15			
8012	10 KHz	TMV	3.08	3.05	3.05	3.05	3.05	3.05	3.05	3.05	3.05			
8013	2.5 KHz	TMV	3.01	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95			
8014	400 Hz	TMV	4.17	4.40	4.45	4.45	4.45	4.45	4.45	4.45	4.45			
8015	Pri. +4V Power Supply	TMV	N	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05			
8016	Pri. +4V Power Supply	TMV	N	2.00	2.00	2.00	2.01	2.00	2.00	2.00	2.00			
8017	Pri. +6V Power Supply	TMV	N	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30			
8018	Pri. +6V Power Supply	TMV	N	2.30	2.30	2.30	2.31	2.30	2.30	2.30	2.30			
8019	Pri. -6V Power Supply	TMV	N	5.23	5.23	5.23	5.23	5.23	5.22	5.23	5.23			
8020	Pri. -6V Power Supply	TMV	N	5.23	5.23	5.23	5.23	5.23	5.22	5.23	5.23			
8021	Pri. -23V Power Supply	TMV	N	5.70	5.70	5.70	5.70	5.69	5.70	5.70	5.70			
8022	Pri. -23V Power Supply	TMV	N	5.65	5.65	5.65	5.65	5.65	5.65	5.65	5.65			
8023	Pri. -29V Power Supply	TMV	N	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29			
8024	Pri. -29V Power Supply	TMV	N	5.29	5.28	5.28	5.29	5.29	5.29	5.29	5.29			
8101	CIU A - 12V	TMV	3.79	3.97	3.97	3.97	3.96	3.96	3.96	3.96	3.96			
8102	CIU B - 12V	TMV	3.78	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95			
8103	CIU A - 5V	TMV	3.93	4.15	4.15	4.14	4.14	4.14	4.14	4.13	4.14			
8104	CIU B - 5V	TMV	3.90	4.10	4.10	4.10	4.10	4.10	4.10	4.10	4.10			
8105	CIU A Temp	DGC	26.01	21.67	21.67	22.29	21.01	21.61	21.24	20.76	21.05			
8106	CIU B Temp	DGC	23.35	19.70	19.71	20.21	19.16	19.67	19.37	18.97	19.20			
8201	Receiver RF-A Temp	DGC	N	29.14	28.83	26.86	28.48	28.73	28.13	27.90	28.29			
8202	Receiver RF-B Temp	DGC	29.09	38.56	38.25	38.33	38.09	38.18	37.81	37.48	37.83			
8203	D MOD A Temp	DGC	28.95	26.72	26.31	26.34	25.90	26.27	25.50	25.26	25.61			
8204	D MOD B Temp	DGC	37.73	-91.43	-90.78	-89.02	-87.21	-93.73	-88.82	-90.17	-90.13			
8205	Receiver A AGC	DBM	F	F	F	F	F	F	F	F	F			
8206	Receiver B AGC	DBM	-87.83	2.54	2.75	2.66	2.69	2.25	2.65	2.63	2.59			
8207	Amp. A Output	TMV	F	F	F	F	F	F	F	F	F			
8208	Amp. B Output	TMV	2.10	F	F	F	F	F	F	F	F			
8209	Freq. Shift Key A Out	TMV	F	1.08	1.09	1.08	1.08	1.08	1.08	1.08	1.08			
8210	Freq. Shift Key B Out	TMV	1.11	F	F	F	F	F	F	F	F			
8211	Amp. A Output	TMV	F	1.13	1.14	1.13	1.13	1.12	1.14	1.15	1.14			
8212	Amp. B Output	TMV	F	F	F	F	F	F	F	F	F			
8215	D MOD A - 15V	TMV	F	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87			
8216	D MOD B - 15V	TMV	F	F	F	F	F	F	F	F	F			
8217	Regulator A - 10V	TMV	4.77	5.40	5.40	5.40	5.40	5.40	5.40	5.40	5.40			
8218	Regulator B - 10V	TMV	F	F	F	F	F	F	F	F	F			
8311	ECAM Mem. Temp	DGC	N	18.41	18.41	18.38	18.13	18.30	18.09	17.81	18.26			
8312	ECAM Pwr Supply Temp	DGC	N	23.13	23.00	22.97	22.52	22.80	22.53	22.18	22.59			

N - Data Not Available.

F - Unit Off.

# SECTION 6

## TELEMETRY SUBSYSTEM (TLM)

The TLM has operated nominally in this report period.

Table 6-1 shows typical telemetry values since launch. All are nominal. Functions 1264 (Thermal Shield 5 Temperature), 4002 (MMCA Board 2 Temperature) and 13200 (APU 24 Volt Input) were defective before launch but verification of these functions is acceptable by adjacent temperature and downstream voltage measurements respectively.

The memory section of the telemetry matrix remains in the 0, 0 mode.

Table 6-1. Landsat-2 TMP Telemetry Values

Func	Name	Units	Orbit								
			35	5091	10182	15211	17710	20252	20673	21076	21466
9001	Memory Sequencer A Converter	VDC	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45
9002	Memory Sequencer B Converter	VDC	F	F	F	F	F	F	F	F	F
9003	Memory Sequencer Temp	DGC	20.00	21.37	21.34	21.87	20.51	21.88	21.98	21.42	21.08
9004	Formatter A Converter	VDC	4.52	4.52	4.52	4.54	4.50	4.52	4.52	4.52	4.50
9005	Formatter B Converter	VDC	F	F	F	F	F	F	F	F	F
9006	Dig. Mux A Converter	VDC	4.22	4.22	4.22	4.23	4.21	4.22	4.22	4.22	4.21
9007	Dig. Mux B Converter	VDC	F	F	F	F	F	F	F	F	F
9008	Formatter/Dig Mux Temp	DGC	25.00	27.80	29.75	32.56	23.91	30.00	30.00	27.40	24.75
9009	Analog Mux A Converter	VDC	4.02	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.05
9010	Analog Mux B Converter	VDC	F	F	F	F	F	F	F	F	F
9011	A/D Converter A Voltage	VDC	4.02	4.03	4.04	4.05	4.03	4.03	4.04	4.03	4.03
9012	A/D Converter B Voltage	VDC	F	F	F	F	F	F	F	F	F
9013	Analog Mux, A/D Conv. Temp	DGC	25.00	27.33	27.44	29.72	24.91	27.52	28.54	27.39	27.22
9014	Preregulator A Voltage	VDC	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
9015	Preregulator B Voltage	VDC	F	F	F	F	F	F	F	F	F
9016	Reprogrammer Temp	DGC	22.50	24.74	25.47	28.98	21.84	24.96	25.55	23.13	22.31
9017	Memory A Converter	VDC	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45
9018	Memory A Temp	DGC	17.50	17.17	17.13	18.66	15.30	16.85	16.48	15.74	15.86
9019	Memory B Converter	VDC	F	F	F	F	F	F	F	F	F
9020	Memory B Temp	DGC	17.50	17.41	17.50	17.52	18.86	17.60	17.52	17.33	17.30
9100	Reflected Power	dBm	18.29	14.18	14.53	15.24	13.89	14.39	14.59	14.27	13.97
9101	Xmtr A-20 VDC	VDC	3.80	3.97	3.98	3.98	3.97	3.97	3.97	3.97	3.97
9102	Xmtr B-20 VDC	VDC	F	F	F	F	F	F	F	F	F
9103	Xmtr A Temp	DGC	27.73	26.40	30.37	26.69	21.56	29.08	30.60	27.30	22.09
9104	Xmtr B Temp	DGC	N	27.74	31.74	37.80	22.69	30.44	31.96	28.68	23.97
9105	Xmtr A Power Output	dBm	27.73	26.69	26.41	26.59	26.30	26.41	26.42	26.38	26.35
9106	Xmtr B Power Output	dBm	F	F	F	F	F	F	F	F	F

N - Data Not Available.  
F - Unit Off.

## SECTION 7

### ORBIT ADJUST SUBSYSTEM

An orbit adjust was performed during Orbit 20514 (1 February 1979) to correct the spacecraft's eastward ground track drift. The ACS was commanded into the Orbit Adjust mode with pneumatics enabled and the OA system performed normally.

The minus X thruster was fired for 34.0 seconds and the spacecraft's altitude was increased by 106.0 meters.

Burn efficiency was calculated at 106.6%.

Figures 7-1, 7-2, 7-3 and 7-4 show the OA and ACS system's performance during the burn maneuver.

Table 7-1 summarizes all of the OAS system's operations since launch.

Table 7-2 shows typical telemetry values for the OAS during its quiescent periods. Variations in thrust chamber temperatures shown in Table 7-2 are consistent with variations in sun intensity and sun angle.

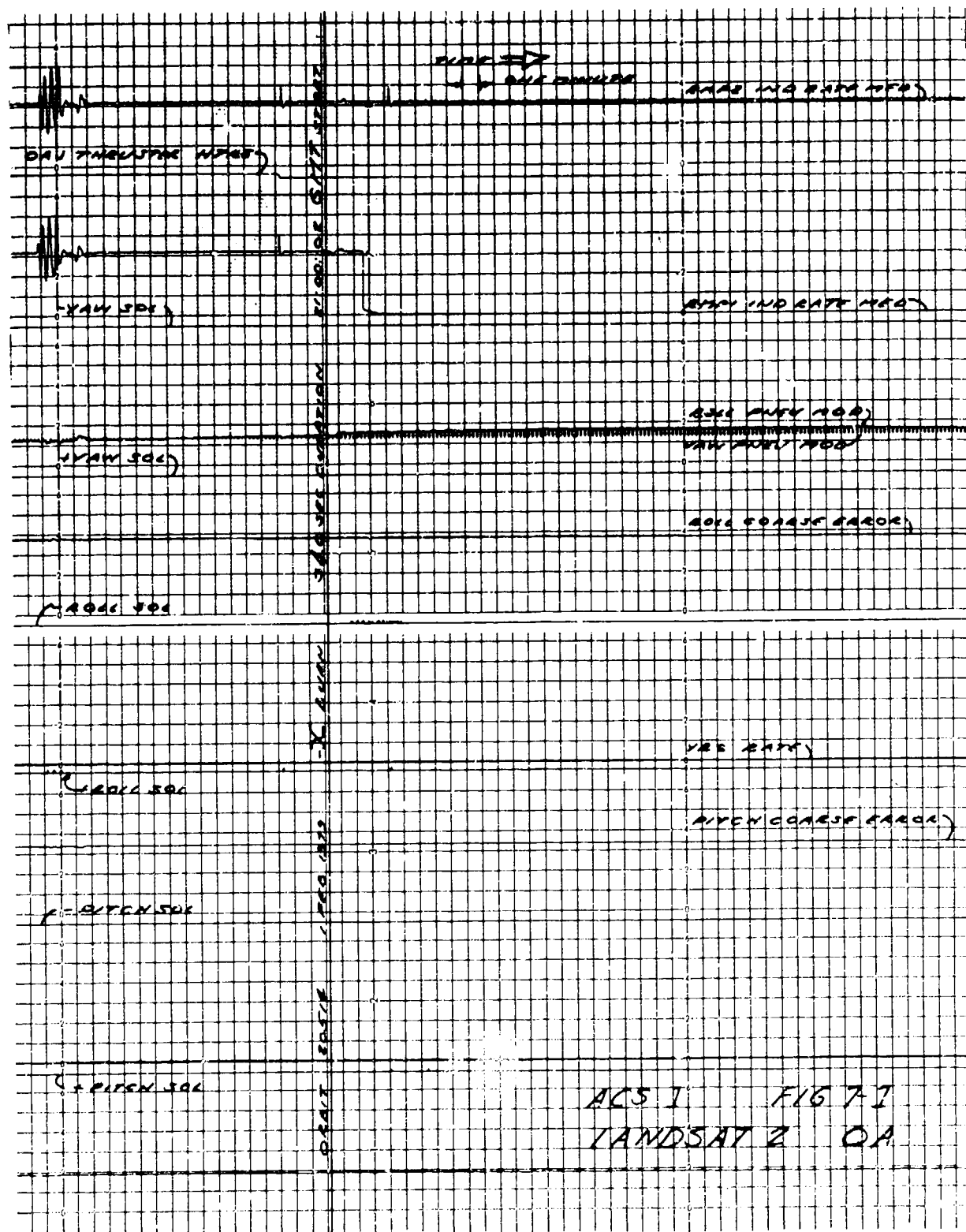


Figure 7-1. ACS 1 - Landsat-2 OA









Table 7-1. Landsat-2 Orbit Adjust Summary

Orbit Adjust No.	Orbit No.	Epoch (Burn Start Time)	Burn Axis		Burn Duration (Seconds)		Post Burn Freeon Status (PSLA)	Hydrazine Consumed (Lbs)	Post Burn Hydrazine Tank P. (PSLA)	Burn Efficiency (%)	$\Delta a$ (Meters)	$\Delta i$ (Degrees)
			(-Y)	(+X)	(-Y)	(+X)						
1	32	25 Jan 75 00:34:00.8		-X		4.8	1547.19	0.03	539.96	104.3	39	0.0
2	71	27 Jan 75 19:57:00.8		+X		4.8	1923.78	0.03	547.46	90.1	-36	0.0
3	79	28 Jan 75 09:49:00.8		-X		420.0	1919.50	1.82	547.46	107.0	3455	0.0
4	86	28 Jan 75 21:13:00.8		-X		420.0	1916.40	1.51	502.46	107.0	3233	0.0
5	163	3 Feb 75 10:36:00.8		+X		420.0	1864.35	1.42	468.75	97.0	-3974	0.0
6	191	5 Feb 75 10:15:00.8		+X		360.0	1874.51	1.15	438.71	97.5	-9421	0.0
7	212	6 Feb 75 22:31:00.8		+X		308.8	1865.15	0.95	416.21	98.6	-2009	0.0
8	880	26 Mar 75 21:44:00.8		-X		12.8	1837.05	0.04	397.47	107.6	82	0.0
9	1632	19 May 75 18:54:00.8		-X		24.0	1757.46	0.07	401.21	107.6	154	0.0
10	2958	22 Aug 75 22:11:58.8		-X		22.0	1440.00	0.07	404.96	110.3	146	0.0
11	14157	2 Nov 77 23:47:01.2	-Y		5.2		1085.19	0.02	425.22	*	2.1	0.0
12	14171	3 Nov 77 23:47:07.2	-Y		60.0		1097.50	0.18	419.94	125.2	23.8	0.002
13	14185	4 Nov 77 23:52:49.2	-Y		60.0		1085.19	0.18	417.14	130.7	28.7	0.002
14	14324	14 Nov 77 23:07:01.2	-Y	+X	300.0	18.8	1065.50	0.97	401.19	97.1	128.4	0.007
15	14352	16 Nov 77 23:18:01.2	-Y	+X	300.0	18.8	1047.79	0.82	388.54	115.8	104.6	0.009
16	14382	19 Nov 77 02:06:01.2	-Y	+X		50.0	1048.00	0.18	385.80	100.9	-311.9	0.0
17	14314	28 Nov 77 14:08:01.2	-Y		300.0		1035.87	0.87	373.95	99.6	197.3	0.007
18	14542	30 Nov 77 14:17:01.2	-Y		420.0	80.0	1025.30	1.43	356.13	106.8	-208.0	0.010
19	14576	2 Dec 77 14:37:31.2	-Y	+X	600.0	80.0	999.87	1.74	338.17	103.0	-131.0	0.014
20	14617	5 Dec 77 23:22:01.2	-Y		600.0		986.50	1.16	319.94	99.0	281.5	0.013

FOLDOUT FRAME

SECTION 11  
THERMAL SUBSYSTEM (THM)

Landsat-2's Thermal Control Subsystem has provided satisfactory temperature control for all of the spacecraft equipment since launch.

Table 11-1 summarizes average subsystem temperature telemetry values taken from representative orbits that occurred over the 51 months of Landsat-2's existence.

Average temperatures in the sensory ring bays are plotted in Figure 11-1.

During this report period, sun intensity decreased from 1.032 to .989 times the mean value. In addition, spacecraft night length increased as the sun angle decreased. Consequently, the average spacecraft temperatures were slightly lower this quarter.

A history of compensation load switching is shown in Table 11-2. All compensation loads remained off during this report period.

29	15105	9 Jan 78 23:14:31.2 23:23:49.2	-Y	+X	600.0	48.0	887.88	0.77	232.23	97.0	-12.0	0.009
30	15119	10 Jan 78 23:20:31.2 23:29:46.0	-Y	+X	600.8	46.0	887.89	1.47	294.68	101.6	-32.6	0.010
31	15127	11 Jan 78 13:08:01.2 13:15:16.0	-Y	+X	600.8	46.0	878.71	1.33	218.32	101.2	-30.8	0.009
32	15133	11 Jan 78 23:28:01.2	-Y		600.8		877.81	0.70	215.65	101.9	109.4	0.009
33	15155	13 Jan 78 13:18:01.2 13:27:48.0	-Y	+X	600.8	14.0	843.19	1.31	209.91	99.5	43.5	0.009
34	15197	16 Jan 78 13:35:01.2 13:44:42.0	-Y	+X	600.8	20.0	843.19	1.11	205.20	98.5	15.9	0.008
35	15211	17 Jan 78 13:41:01.2 13:50:56.0	-Y	+X	601.8	7.0	854.24	0.71	202.49	98.2	61.5	0.008
36	15225	18 Jan 78 13:46:01.2 13:55:26.0	-Y	+X	600.8	36.0	838.57	1.27	197.50	94.8	-43.0	0.006
37	15295	23 Jan 78 14:15:01.2 14:24:46.0	-Y	+X	600.8	16.0	835.90	0.91	194.14	99.8	27.7	0.006
38	15309	24 Jan 78 14:21:01.2 14:36:46.0	-Y	+X	600.8	16.0	814.93	1.06	191.03	84.2	21.7	0.007
39	15314	24 Jan 78 22:57:00.0 23:06:50.0	-Y	+X	600.0	10.0	814.13	1.02	187.50	92.2	45.0	0.007
40	15323	25 Jan 78 14:27:01.2 14:36:46.0	-Y	+X	600.8	16.0	811.82	1.02	186.48	90.6	- 4.6	0.007
41	15328	25 Jan 78 23:03:31.2 23:12:02.0	-Y	+X	600.8	30.0	806.81	1.03	183.05	88.3	- 32.8	0.007
42	15337	26 Jan 78 14:32:01.2 14:51:42.0	-Y	+X	600.8	20.0	807.40	0.99	179.28	90.5	14.7	0.007
43	15398	30 Jan 78 23:31:54.2 23:42:12.0	-Y	+X	637.8	20.0	801.57	1.04	176.94	85.3	- 1.9	0.007
44	15412	31 Jan 78 23:38:01.2 23:47:42.0	-Y	+X	600.8	20.0	801.60	0.97	174.20	82.9	- 5.4	0.006
45	15426	1 Feb 78 23:44:01.2 23:53:46.0	-Y	+X	600.8	16.0	801.57	0.95	172.50	88.0	4.5	0.006
46	15440	2 Feb 78 23:50:01.2	-Y		600.8		801.57	0.92	171.78	100.5	54.5	0.006
47	19246	2 Nov 78 22:39:02.0	-X	-X	600.8	20.0	616.59	0.03	172.49	93.9	55.0	0.0
48	20514	1 Feb 79 21:00:02	-X	-X	34.0	34.0	539.50	0.95	172.50	104.6	104.0	0.0

**SECTION 8**  
**MAGNETIC MOMENT COMPENSATING ASSEMBLY (MMCA)**

The spacecraft was corrected for unbalanced magnetic moments in Orbits 293 and 321 as reported earlier. These adjustments were made on the pitch magnetic rod of the MMCA.

No adjustment to the MMCA dipoles was made during this report period.

Orbital averages of MMCA telemetry functions for selected orbits are given in Table 8-1.

**Table 8-1. Landsat-2 MMCA Telemetry Values**

Function	Name	Units	Orbit								
			50	5102	10191	15211	17711	20252	20673	21076	21466
4001	A1 Board Temp	°C	20.56	19.47	19.12	18.82	18.60	18.90	18.31	18.00	18.24
4002	A2 Board Temp	°C	D	D	D	D	D	D	D	D	D
4003	Hall Current	TMV	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40	3.40
4004	Yaw Flux Density	TMV	3.05	3.07	3.07	3.07	3.07	3.07	3.07	3.07	3.07
4005	Pitch Flux Density	TMV	3.15	2.90	2.90	2.90	2.90	2.90	2.90	2.90	2.90
4006	Roll Flux Density	TMV	2.99	2.97	2.97	2.97	2.96	2.97	2.97	2.97	2.97

D = Defective Telemetry Function (Pre-launch)

**SECTION 9**  
**UNIFIED S-BAND/PREMODULATION PROCESSOR (USB/PMP)**

The USB Subsystem has operated nominally in this report period.

Table 9-1 shows telemetry values since launch. All are nominal. The transmitter has maintained a steady indicated power output of greater than 1.3 watts since launch.

USB transmitted signal levels measured at Goldstone with the spacecraft successively at the same points in space show continuous satisfactory USB performance.

Table 9-1. Landsat-2 USB/PMP Telemetry Values

Func.	Name	Units	Orbits								
			15	5091	10941	15211	17712	20251	20673	21076	21468
11001	USB Revr AGC	dFm	-112.72	-124.29	-124.85	-126.12	-123.80	-131.50	-121.76	-124.26	-121.33
11002	USB Xmtr Pwr	W	1.36	1.38	1.39	1.39	- 1.35	1.36	1.35	1.34	1.36
11003	USB Revr Error	kHz	- 2.15	- 2.97	- 3.43	- 4.98	- 2.55	- 4.35	- 4.46	- 4.14	- 5.31
11004	USB Xpond Temp	DGC	25.88	27.49	29.06	33.03	24.57	28.50	29.73	28.45	26.90
11005	USB Xpond Press	PSI	17.08	16.43	15.96	16.03	15.20	15.09	15.08	14.98	14.83
11007	USB Xmtr A -15V	VDC	2.36	F	F	F	F	F	F	F	F
11008	USB Xmtr B -15V	VDC	F	2.42	2.39	2.36	2.43	2.43	2.40	2.37	2.38
11009	USB Range -15V	VDC	2.07	2.06	2.06	2.06	2.05	2.05	2.05	2.05	2.05
11101	PMP Pwr A Volt	VDC	- 15.10	F	F	F	F	F	F	F	F
11102	PMP Pwr B Volt	VDC	F	- 14.99	- 14.99	- 14.96	- 15.00	- 14.99	- 14.95	- 14.92	- 14.89
11103	PMP Temp A	DGC	37.30	34.67	37.49	43.12	28.79	36.56	37.56	34.66	30.50
11104	PMP Temp B	DGC	28.34	36.08	36.64	44.11	30.30	37.64	39.09	36.69	33.34

F = Unit Off

SECTION 11  
THERMAL SUBSYSTEM (THM)

Landsat-2's Thermal Control Subsystem has provided satisfactory temperature control for all of the spacecraft equipment since launch.

Table 11-1 summarizes average subsystem temperature telemetry values taken from representative orbits that occurred over the 51 months of Landsat-2's existence.

Average temperatures in the sensory ring bays are plotted in Figure 11-1.

During this report period, sun intensity decreased from 1.032 to .989 times the mean value. In addition, spacecraft night length increased as the sun angle decreased. Consequently, the average spacecraft temperatures were slightly lower this quarter.

A history of compensation load switching is shown in Table 11-2. All compensation loads remained off during this report period.

Table 11-1. Thermal Subsystem Analog Telemetry  
(Average Value for Frames of Data Received in NBTR Playback)

Function No.	Function Description	Unit	Orbit								
			21	5102	10192	15211	17711	20252	20673	21076	21466
7001	THM TH01 STI	DGC	19.40	19.97	19.59	19.68	18.27	18.08	19.22	18.71	19.42
7002	THM TH02 SBO	DGC	17.18	17.47	17.68	17.98	17.15	17.15	18.85	16.90	16.86
7003	THM TH03 STI	DGC	18.73	18.50	18.65	18.02	17.54	17.62	16.97	16.93	17.11
7004	THM TH10 TCB	DGC	19.38	19.34	19.94	21.20	18.06	19.47	19.36	18.72	18.38
7005	THM TH04 STI	DGC	17.19	16.76	21.37	16.70	16.35	16.06	15.35	15.62	15.77
7006	THM TH05 SBO	DGC	17.42	16.68	16.65	16.38	16.25	16.28	15.49	15.53	15.72
7007	OA-X Thruster	DGC	19.66	19.65	19.44	19.70	19.56	19.50	18.85	18.72	19.43
7008	THM TH06 STO	DGC	14.78	13.94	13.57	13.34	13.14	13.36	12.43	12.26	12.65
7009	THM TH06 SBI	DGC	19.19	18.41	18.10	17.91	17.37	17.76	16.63	16.35	16.65
7010	THM TH07 STI	DGC	18.08	17.44	17.11	17.10	16.44	15.84	15.04	15.70	16.08
7011	THM TH08 STO	DGC	19.34	19.23	19.00	18.92	19.21	18.99	18.24	18.22	19.00
7012	THM TH09 SBI	DGC	21.44	20.93	20.94	01.48	20.16	20.84	20.32	19.89	20.14
7013	THM TH10 SBO	DGC	18.58	18.39	18.59	19.12	17.87	18.49	18.11	17.81	17.94
7014	THM TH11 STI	DGC	21.65	21.93	22.75	24.58	20.09	22.25	22.24	21.23	20.53
7015	THM TH12 SBO	DGC	23.93	24.68	26.85	29.56	22.52	26.07	25.52	25.13	23.51
7016	THM TH13 STI	DGC	22.21	23.62	25.73	29.30	20.38	24.85	25.46	23.53	21.30
7017	RBV Beam Ctr Ln	DGC	20.38	19.92	20.16	21.25	17.41	19.98	19.53	19.75	18.50
7018	THM TH14 STO	DGC	24.13	26.43	29.64	35.01	21.41	28.12	29.04	26.37	22.43
7019	NBR Rad Outbd B4	DGC	2.72	2.93	2.44	2.65	1.79	2.40	1.63	1.21	1.33
7020	THM TH15 SBI	DGC	23.07	25.56	27.07	31.02	20.21	26.22	26.58	24.32	21.25
7021	THM TH16 STI	DGC	23.26	25.46	25.87	29.22	21.08	25.26	25.53	23.76	21.80
7022	THM TH17 SBI	DGC	21.77	23.74	23.75	25.97	20.48	23.26	23.75	22.42	21.13
7023	THM TH18 SBO	DGC	21.87	23.36	23.69	25.27	21.08	22.23	23.98	23.04	21.86
7030	THM TH03 BVR	DGC	15.50	15.14	15.59	15.08	15.19	14.75	14.11	14.58	14.75
7033	THM TH12 BVR	DGC	23.05	21.59	27.14	31.18	22.37	26.24	27.09	25.56	23.65
7035	THM TH18 BVR	DGC	19.53	20.38	20.20	21.03	18.18	20.10	20.31	19.59	18.61
7040	THM TH01 TCB	DGC	19.42	19.72	19.96	19.66	18.72	19.37	19.19	18.96	18.75
7041	THM TH02 TCB	DGC	17.55	17.39	17.42	16.94	16.35	16.95	16.53	16.48	16.61
7042	THM TH03 TCB	DGC	16.85	16.32	18.04	17.06	17.20	16.00	15.13	16.19	16.43
7043	THM TH04 TCB	DGC	19.90	19.33	18.16	19.16	19.18	19.09	18.36	18.50	18.60
7044	THM TH05 TCB	DGC	16.42	15.75	15.44	15.17	14.98	15.27	14.45	14.23	14.54
7045	THM TH07 TCB	DGC	17.76	17.33	17.01	16.92	16.73	16.76	16.05	15.83	16.30
7046	THM TH09 TCB	DGC	19.30	18.81	18.82	19.31	18.25	19.84	18.40	17.96	18.24
7048	THM TH11 TCB	DGC	23.27	23.74	24.99	27.06	22.12	24.56	24.68	23.61	22.69
7049	THM TH12 TCB	DGC	23.04	23.94	26.83	30.59	21.07	25.79	26.82	24.95	22.43
7050	THM TH13 TCB	DGC	22.99	24.67	27.61	31.99	20.52	26.50	27.44	25.08	21.80
7051	THM TH14 TCB	DGC	25.07	27.69	31.17	36.18	22.10	29.34	30.04	27.21	23.13
7052	THM TH16 TCB	DGC	22.22	24.29	25.82	29.18	21.23	24.41	25.25	23.77	21.86
7053	THM TH17 TCB	DGC	25.52	24.86	25.00	26.83	22.45	24.94	25.69	24.59	23.64
7054	THM TH18 TCB	DGC	20.01	20.99	21.41	21.17	20.77	20.12	21.34	20.94	20.50
7060	THM Shutter By 1	DEG	22.54	26.65	27.36	24.93	16.56	18.87	21.51	17.71	15.62
7061	THM Shutter By 2	DEG	19.34	21.13	17.89	11.72	13.68	12.28	10.91	7.55	12.27
7062	THM Shutter By 3	DEG	22.75	11.99	28.91	19.01	21.45	9.12	1.27	9.11	12.56
7063	THM Shutter By 4	DEG	33.89	33.00	32.90	27.37	30.41	30.00	26.44	23.55	28.60
7064	THM Shutter By 5	DEG	7.50	2.90	2.42	1.79	0.58	5.7	5.7	5.7	5.8
7065	THM Shutter By 7	DEG	17.06	14.11	8.88	6.89	6.85	9.5	2.75	2.51	4.15
7067	THM Shutter By 9	DEG	33.75	34.12	33.70	36.71	30.73	34.01	33.71	31.50	31.10
7069	THM Shutter By 10	DEG	37.46	37.09	40.64	48.39	29.32	38.31	37.04	33.86	31.47
7069	THM Shutter By 11	DEG	52.25	17.39	22.81	46.32	9.14	27.06	25.89	15.82	14.31
7070	THM Shutter By 12	DEG	61.38	67.46	80.70	83.62	49.55	78.36	82.45	74.26	59.27
7071	THM Shutter By 13	DEG	63.60	74.14	81.89	81.88	46.49	80.94	80.27	74.95	56.31
7072	THM Shutter By 14	DEG	59.44	72.14	72.91	71.60	36.82	70.11	70.11	65.82	44.20
7073	THM Shutter By 15	DEG	67.79	82.12	83.87	83.96	51.29	82.61	82.50	78.99	59.28
7074	THM Shutter By 16	DEG	45.20	61.13	69.30	76.93	43.22	61.63	66.23	56.92	45.61
7075	THM Shutter By 17	DEG	57.98	67.62	68.67	78.13	51.96	69.71	74.08	65.83	61.50
7076	THM Shutter By 18	DEG	40.49	45.84	47.49	46.15	45.42	40.01	47.72	45.06	43.05
7080	THM Q1 T Zener V	VDC	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85	4.85
7081	THM Q2 T Zener V	VDC	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90	4.90
7082	THM Q3 T Zener V	VDC	5.05	5.05	5.04	5.04	5.03	5.03	5.03	5.03	5.03
7083	THM Q1 S Zener V	VDC	4.97	4.96	4.96	4.96	4.95	4.95	4.95	4.95	4.95
7084	THM Q2 S Zener V	VDC	4.98	4.99	4.98	5.00	4.98	4.98	4.98	4.98	4.98
7085	THM Q3 S Zener V	VDC	5.15	5.15	5.15	5.15	5.15	5.15	5.15	5.15	5.15
7090	THM PSM Mount	DGC	21.02	21.71	21.28	22.79	18.93	21.14	20.74	19.57	19.05
7091	THM Ind Attitude	DGC	17.79	17.24	16.95	16.98	16.00	16.58	15.80	15.31	15.67
7092	THM RBV Radiator	DGC	18.01	16.24	16.71	18.06	14.84	16.70	16.25	15.58	15.28
7093	THM RBVC Ctr Bm	DGC	20.74	19.31	19.44	20.64	17.53	19.29	18.80	17.97	17.75
7094	THM WBVTR Root	DGC	13.77	15.72	13.90	14.91	11.88	13.77	13.32	12.58	12.11
7095	THM WBVTR Rad Ct	DGC	3.64	5.55	4.45	5.38	3.58	4.76	4.34	3.99	3.70
7096	THM WBVTR Strap	DGC	13.90	17.63	15.29	15.98	13.46	15.02	14.67	14.02	13.65
7097	THM WB Mt Bay 1	DGC	22.91	22.49	16.47	16.44	15.77	17.87	17.24	16.32	16.27
7098	THM WB Mt Bay 1	DGC	22.07	20.14	16.20	16.50	15.32	18.35	17.50	16.50	16.20
7099	THM WBVTR Sep 3	DGC	18.03	18.12	17.79	17.38	16.60	16.92	16.33	16.21	16.21
7100	THM WBVTR Sep 17	DGC	21.83	23.51	22.94	24.85	19.99	22.48	22.78	21.54	20.50
7101	THM WBVTR 1 Cent	DGC	22.45	23.78	20.38	20.91	18.44	19.93	19.76	18.99	18.58
7102	THM WBVTR 2 Bay	DGC	17.34	17.29	17.94	16.92	15.88	16.41	15.61	15.32	15.48
7103	THM WBVTR 2 Bay 15	DGC	21.77	23.87	23.50	26.10	18.95	23.98	24.00	21.38	19.58
7104	THM WBVTR 2 Ctr	DGC	20.74	24.34	19.94	21.14	17.28	19.86	19.29	18.23	17.43
7105	THM WBVTR 2 Sep 6	DGC	17.82	17.86	17.23	17.67	15.96	17.13	15.69	15.04	15.04
7106	THM WBVTR 2 Sep 1	DGC	22.11	23.85	24.93	28.10	19.55	24.23	24.35	22.52	20.31
7107	THM NBTR Bm Ctr	DGC	20.32	21.21	20.59	21.90	17.80	20.26	19.57	18.54	17.80
7108	THM MSS Mount 14	DGC	20.59	22.98	23.83	26.99	18.40	22.94	23.07	21.27	19.17
7109	THM OA - Y Thruster	DGC	25.64	27.51	29.91	36.27	21.78	28.45	29.13	26.53	23.02
7110	THM MSS WBVTR Bm	DGC	16.75	18.21	16.94	17.55	14.86	16.47	15.77	15.04	14.76
7111	THM OA +X Thruster	DGC	20.33	20.43	17.54	17.51	16.67	18.82	18.33	17.50	17.31
7130	THM Aux Pt T	DGC	34.11	29.67	12.01	8.87	9.05	13.84	12.06	12.92	10.07
7131	THM Aux Pt T	DGC	2.90	6.97	26.16	3.49	8.03	27.13	28.76	10.12	17.31



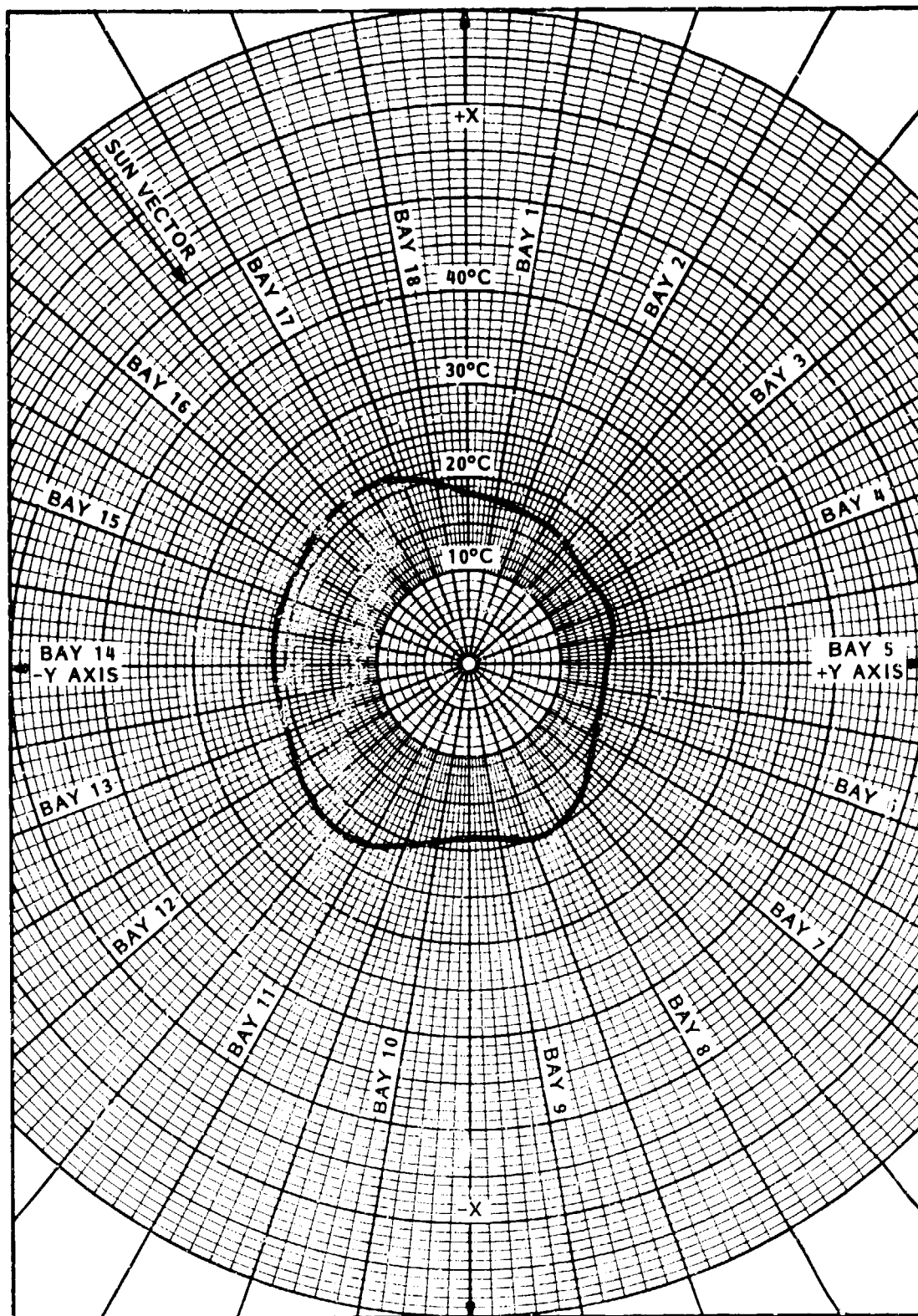


Figure 11-1. Landsat-2 Sensory Ring Average Bay Temperatures -  
Orbit 21466, 10 April 1979

Table 11-2. Landsat-2 Compensation Load History

Compensation Load Status*								
Orbits	1	2	3	4	5	6	7	8
Launch	0	0	0	0	0	0	0	0
2	X	X	X	X	X	0	X	X
237	X	X	X	X	X	0	0	0
272	X	X	X	X	X	0	X	X
306	X	X	0	X	X	0	0	0
572	X	X	0	X	X	0	0	X
1367	X	X	X	X	X	0	0	X
1645	X	X	0	X	X	0	0	X
1657	X	X	X	X	X	0	0	X
4202	0	0	X	X	0	0	0	0
4372	0	0	X	X	0	0	0	X
6735	0	X	X	0	0	X	0	0
8312	X	X	0	0	X	0	0	0
9753	X	X	0	0	0	0	0	0
14727	0	0	0	0	0	0	0	0

\*NOTE X = ON  
0 = OFF

SECTION 12  
NARROWBAND TAPE RECORDERS (NBR)

During Orbit 20267 on 15 January 1979, while Alaska and Goldstone were recording a playback of NBR-A, the ground stations suddenly were unable to synchronize on the data. They had satisfactorily recorded the data for 35 seconds of its scheduled 4.8 minutes. Attempts to play back data in the next orbit were similarly unsuccessful. Motor current (Function 10001 was about 35% above normal.) The recorder has not been operated since Orbit 20268 on 15 January 1979. The recorder has had 18320 hours of ON-time.

NBR-B has operated satisfactorily. Its ON time has been correlated with payload activity to conserve use. Both Recorders had alternated in Record and Playback modes with a nominal one minute overlap.

Table 12-1 gives cumulative operating hours for both Recorders by mode, and Table 12-2 gives typical telemetry values.

Table 12-1. NBR Operating Hours by Mode

NBR	ON	OFF	Playback	Record
A	18320	16724	720	17600
B	19548	17627	779	18769

Table 12-2. Narrowband Tape Recorder Telemetry Values, Landsat-2

Func	Name	Units	Orbits								
			36/37	4986/4981	11460/11461	15211/15212	17715/39	19711/2	20710	21002	21438
10001	A - Motor I Record P/B	mA	132.0 103.0	130.2 93.7	125.50 92.30	114.68 99.47	117.46 80.95	122.22 82.54	Q Q	Q Q	Q Q
10101	B - Motor I Record P/B	mA	148.5 143.6	135.7 135.7	129.10 127.65	119.27 119.09	114.57 107.04	111.55 107.04	111.55 N	111.55 N	111.55 N
10002	A - Pwr Sup. I Record P/B	mA	170.5 410.0	162.5 399.3	152.13 472.26	152.92 386.14	149.34 376.32	152.63 386.14	Q Q	Q Q	Q Q
10003	B - Pwr Sup. I Record P/B	mA	260.0 481.0	264.0 489.2	264.47 479.90	270.12 479.70	267.69 476.57	270.89 489.19	270.89 N	270.89 N	270.89 N
10103	A - Rec. Temp.	DGC	25.1	24.2	21.64	25.40	22.02	23.30	19.68	19.47	18.83
10103	B - Rec. Temp.	DGC	27.0	26.2	24.71	23.69	23.72	24.15	21.81	21.38	23.08
10004	A - Pwr Sup	VDC	-24.87	-25.1	-25.09	-25.08	-25.10	-24.95	Q	Q	Q
10104	B - Pwr Sup	VDC	-24.55	-24.6	-24.61	-24.73	-24.50	-24.62	-24.62	-24.62	-24.62

Q = Unit Failure  
N = Data Not Available Since Loss of NBR-1

# SECTION 13 WIDEBAND TELEMETRY SUBSYSTEM (WBTS)

The WBTS has operated nominally in this report period.

Table 13-1 shows typical telemetry values. All are nominal.

WPA transmitted signal levels, measured at Goldstone with the spacecraft successively at the same points in space, show continuous satisfactory WPA performance.

Table 13-1. Typical Wideband Subsystem Telemetry

Func	Name	Units	Orbit								
			47	5091	10641	15211	17700	20248	20658	21002	21466
12001	Temp TWT Coil.	DGC	34.38	F	F	33.12	F	33.12	18.33	33.12	19.72
12101			30.00	32.16	34.65	30.00	26.25	29.37	29.38	27.81	28.38
12002	Cur. Helix	mA	4.29	F	F	3.90	F	3.90	F	3.90	F
12102			4.41	4.59	4.61	4.70	4.46	4.88	4.85	4.85	4.75
12003	Cur. Cath.	mA	46.04	F	F	44.93	F	44.93	F	44.93	F
12103			46.42	46.00	44.07	44.62	45.14	45.58	45.55	45.79	44.12
12004	Fwd. Pwr.	dBm	42.95	F	F	42.87	F	42.82	F	42.87	F
12104			43.31	43.61	43.51	43.61	43.36	43.70	43.69	43.70	43.62
12005	Refl. Pwr.	dBm	26.50	F	F	25.44	F	25.44	F	25.44	F
12105			37.50	37.08	36.90	37.17	36.02	37.44	36.43	37.37	37.24
12227	Mod. A Loop Stress	Hz	2.14	F	1.60	1.77	0.75	1.64	1.34	1.51	1.70
12228	Mod. B Loop Stress	Hz	1.51	- 0.22	0.28	- 0.66	- 0.93	- 0.05	- .66	- .38	- .55
12229	Temp. Mod	DGC	18.51	17.97	17.41	16.00	18.44	17.29	16.21	17.00	16.33
12232	+15 VDC Pwr Sply	TMV	2.65	2.65	2.65	2.85	2.65	2.65	2.65	2.65	2.65
12234	-15 VDC Pwr Sply	TMV	4.27	4.04	3.99	4.10	4.19	4.10	4.12	4.15	4.12
12236	+5 VDC Pwr Sply	TMV	3.57	3.51	3.50	3.55	3.53	3.55	3.49	3.55	3.55
12238	-5 VDC Pwr Sply	TMV	4.20	4.07	4.02	4.05	4.11	4.07	4.13	4.10	4.10
12240	-24 VDC Unreg Pwr	TMV	6.20	5.90	5.92	5.92	6.02	5.85	5.96	5.85	5.97
12242	Temp. Inv.	DGC	24.12	22.63	22.18	22.17	21.26	22.02	20.50	21.46	21.43

F= Unit Off

# SECTION 14

## ATTITUDE MEASUREMENT SENSOR (AMS)

The AMS is a passive radiometric balance sensor which operates in the 14-16 micron IR band. AMS telemetry Values are shown in Table 14-1.

The AMS was launched in the OFF mode (CMD 774), turned ON during Orbit 6, and has been performing normally since then.

Table 14-1. Landsat-2 AMS Temperature Telemetry

Func	Name	Units	Orbit Number								
			50	5102	10191	15211	17711	20232	20673	21076	21466
3004	Cool Temp 1	DGC	19.00	18.68	18.36	18.67	17.50	18.37	17.68	17.09	17.56
3005	Assembly - Temp 2	DGC	18.70	18.30	17.97	18.28	17.23	18.08	17.25	16.76	17.23

# SECTION 15

## WIDEBAND VIDEO TAPE RECORDERS (WBVTR)

WBVTR-1 has not been in use since Orbit 10249 on 26 January 1977 because of failures of two of its Record/Playback heads (head 1, Orbit 2683, 3 August 1975; head 3, Orbit 10064 on 13 January 1977).

Twice in 1975, for an undetermined reason, WBVTR-2 stopped Rewind prematurely; once during Orbit 1913 on 9 June and again during Orbit 3854 on 26 October. This abnormality has not occurred since.

On 21 December 1976, during Orbit 5733, a playback of MSS data from WBVTR-2 of Landsat-2 was unusable due to high bit error counts. This anomaly has been experienced many times since then. The condition exists due to a tape overspeed of approximately 27%, caused by the servo voltage input being zero during the time of the anomaly. A simple operational procedure (Switch from Playback to Record to Playback) restores normal operation.

Table 15-1 gives typical non-modal telemetry values for WBVTR-1 and WBVTR-2. Tables 15-2 and 15-3 show the modal telemetry values for Record, Playback, Rewind, and Standby operational modes.

Figure 15-1 shows tape usage for WBVTR-3.

Table 15-1. Telemetry Values for WBVTR-1 and 2

Func	Name	Units	Orbits							
			45/46	4879	11371	17715	20251	20673	21076	21466
13022	Tape Unit Pres	PSI	15.52	15.39	16.12	15.99	15.99	15.99	15.99	15.86
13023	Tape Unit Temp	DGC	20.74	20.12	16.69	16.30	18.12	18.14	17.05	16.69
13024	Elec U. Temp	DGC	25.89	21.68	13.85	13.46	14.98	14.93	13.90	14.40
13032	Limiter Volt	VFP	1.48	1.41	F	F	F	F	F	F
13034	+5.6 VDC Conv	VDC	5.70	5.67	F	F	F	F	F	F
13122	Tape Unit Press	PSI	15.12	15.33	14.54	13.35	13.10	13.08	13.04	12.95
13123	Tape Unit Temp	DGC	21.50	23.08	19.92	17.46	21.70	19.70	18.72	17.34
13124	Elect. U. Temp	DGC	23.56	22.72	16.63	16.92	22.25	19.18	18.58	17.47
13132	Limiter Volt	VPP	1.30	1.28	1.34	1.34	1.34	1.34	1.33	1.34
13134	+5.6 VDC Conv	VDC	5.71	5.85	5.66	5.80	5.64	5.74	5.73	5.57

F = Unit Off

Table 15-2. Function Values by Mode, Landsat-2 WBVTR-1 Telemetry

Func	Name	Units	Orbits						10249*
			31/46	2642	4878	7628/7643	10050/10081		
13029	Input P/B Voltage	VPP							
	Record		0.0	0.0	0.0	0.0	0.0	0.0	
	Playback		0.60	0.32	0.30	0.32	0.35	0.35	
	Rewind		0.0	0.0	0.0	0.0	0.0	0.0	
	Standby		0.0	0.0	0.0	0.0	0.0	0.0	
	Capstan Motor I	AMP							
	Record		0.31	0.33	0.31	0.33	0.31	0.32	
	Playback		0.26	0.31	0.30	0.35	0.30	0.35	
	Rewind		0.19	0.23	0.28	0.31	0.28	0.30	
	Standby		0.0	0.0	0.0	0.0	0.0	0.0	
	Headwheel Motor I	AMP							
	Record		0.50	0.50	0.53	0.50	0.56	0.52	
	Playback		0.49	0.49	0.53	0.53	0.44	0.45	
	Rewind		0.44	0.44	0.47	0.47	0.45	0.44	
	Standby		0.45	0.45	0.46	0.44	0.44	0.44	
	Recorder Input I	AMP							
	Record		3.69	3.69	3.62	3.62	3.62	3.52	
	Playback		3.37	3.86	3.86	3.34	3.86	3.86	
	Rewind		2.23	2.19	2.23	2.28	2.23	3.21	
	Standby		1.78	1.95	1.95	1.81	1.95	1.86	
	Servo Voltage	PCT							
	Record		0.0	0.0	0.0	0.0	0.0	0.0	
	Playback		50.01	50.08	50.37	50.04	49.61	50.08	
	Rewind		0.0	0.0	0.0	0.0	0.0	0.0	
	Standby		0.0	0.0	0.0	0.0	0.0	0.0	
	Capstan Motor Spd	PCT							
	Record		88.61	88.03	85.13	85.03	87.45	88.61	
	Playback		88.35	86.87	85.13	87.45	94.90	88.87	
	Rewind		100.2	98.48	96.73	98.48	96.00	96.52	
	Standby		0.0	0.0	0.0	0.0	0.0	0.0	
	Headwheel Mo Spd	PCT							
	Record		96.72	95.07	93.96	94.07	94.16	94.28	
	Playback		97.28	94.52	92.86	92.86	94.44	94.80	
	Rewind		98.6	96.73	96.73	96.73	96.73	96.60	
	Standby		98.39	95.62	95.07	93.96	95.07	93.96	

\* Unit not used since Orbit 10249.



Table 15-3. Function Values by Mode - Landsat-2 WBVTR-2 Telemetry

Func	Name	Units	Orbits								21198	
			31/46	4878	10198/10199	15303/15286	17115	20249	20710	21002		
13129	Input P/B Voltage	VPP										
	Record		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Playback		0.35	0.34	0.34	0.33	0.31	0.36	0.35	0.33	0.32	0.32
	Rewind		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
13123	Standby		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Capstan Motor I	AMP										
	Record		0.33	0.38	0.32	0.34	0.32	0.37	0.37	0.37	0.37	0.32
	Playback		0.33	0.35	0.35	0.36	0.32	0.32	0.34	0.34	0.34	0.34
13130	Rewind		0.20	0.15	0.18	0.18	0.15	0.18	0.13	0.13	0.13	0.13
	Standby		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Headwheel Motor I	AMP										
	Record		0.47	0.48	0.49	0.47	0.50	0.49	0.48	0.48	0.48	0.49
13131	Playback		0.48	0.48	0.49	0.47	0.47	0.47	0.48	0.47	0.47	0.47
	Rewind		0.44	0.41	0.43	0.41	0.41	0.40	0.41	0.38	0.40	0.40
	Standby		0.43	0.41	0.44	0.40	0.41	0.41	0.40	0.40	0.40	0.40
	Recorder Input I	AMP										
13133	Record		2.90	2.90	2.90	2.93	2.96	2.93	2.87	2.87	2.87	2.90
	Playback		3.14	3.11	3.20	3.11	3.11	3.08	3.14	3.11	3.11	3.11
	Rewind		1.80	1.80	1.60	1.78	1.71	1.75	1.73	1.73	1.73	1.73
	Standby		1.51	1.62	1.49	1.48	1.55	1.46	1.46	1.46	1.46	1.46
13136	Servo Voltage	PCT										
	Record		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Playback		49.00	49.43	49.45	49.71	49.72	50.01	49.72	49.81	49.72	49.72
	Rewind		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
13126	Standby		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Capstan Motor Spd	PCT										
	Record		112.10	105.33	105.30	103.96	103.96	102.59	102.59	102.59	102.59	102.59
	Playback		112.10	103.96	105.07	102.59	102.59	101.90	101.90	101.22	101.22	101.22
13127	Rewind		120.43	117.68	117.14	116.31	115.62	115.63	115.63	116.31	115.63	115.63
	Standby		0.0	0.0	0.0	0.0	0.0	0.00	0.0	0.0	0.0	0.0
	Headwheel Mo Spd	PCT										
	Record		98.08	95.48	95.01	93.40	93.40	92.88	93.40	93.40	93.40	93.40
13127	Playback		97.04	94.44	94.80	93.40	92.88	92.88	92.88	92.88	92.88	92.88
	Rewind		98.6	96.52	96.81	94.44	93.92	93.92	93.40	94.44	93.40	93.40
	Standby		100.79	96.00	95.95	94.96	94.44	92.88	92.88	92.88	92.88	92.88

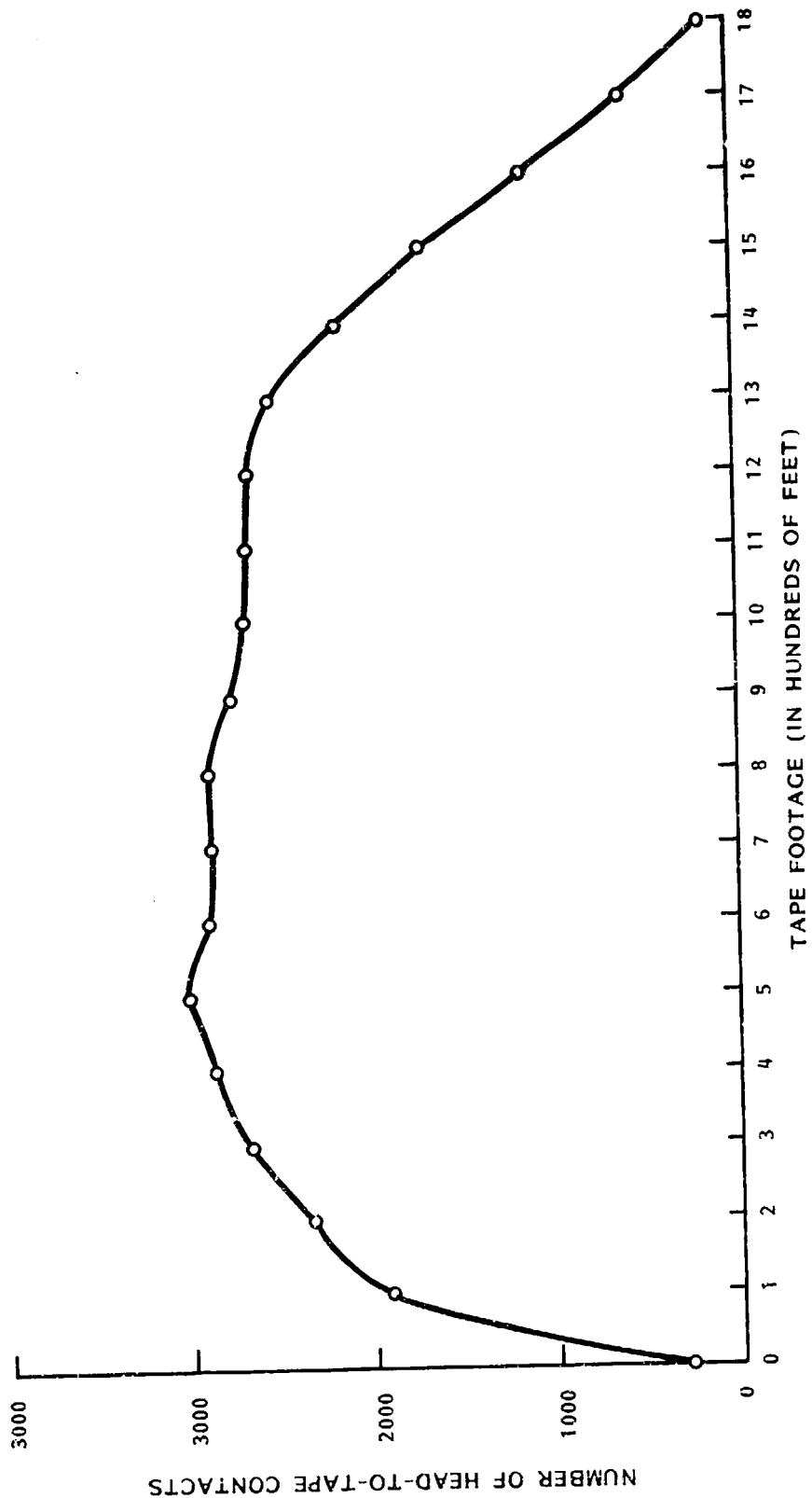


Figure 15-1. Landsat-2 WBVTR-2 Tape Usage Thru Orbit 21798

# SECTION 16

## RETURN BEAM VIDICON (RBV)

RBV was on for quarterly engineering test during this report period. Telemetry data was normal.

Table 16-1 gives typical telemetry values for the RBV Subsystem. Tables 16-2, 16-3 and 16-4 gives telemetry values for Prepare, Read and Hold modes for the three RBV cameras.

Table 16-1. RBV Telemetry Values

Func	Name	Units	Orbits							
			54	5662	10157	15228	17739	19075	19712	21002
14001	CCC Board Temp.	DGC	19.65	20.41	20.15	21.57	18.28	18.83	19.39	19.39
14002	CCC Pwr. Sup. Temp	DGC	20.52	20.80	20.17	22.79	18.83	19.94	20.49	19.94
14003	15 VDC Sup.	TMV	3.92	4.00	3.84	3.77	3.92	3.95	3.95	3.92
14004	+6V, -5.25 VDC Sup.	TMV	2.92	3.13	3.03	2.93	3.05	3.07	3.07	3.07
14100	* VID Output V	TMV	N	0.70	1.95	1.18	1.15	0.75	1.45	1.77
14200			1.05	1.26	0.88	1.18	0.67	1.70	2.40	1.70
14300			1.03	1.31	1.10	1.17	0.70	1.60	2.17	1.27
14102	* Comb. Align Cur.	TMV	3.85	3.82	3.70	3.85	3.80	3.92	3.80	3.80
14202			3.91	3.88	3.92	3.91	3.97	3.87	3.97	3.97
14302			3.90	3.93	3.75	3.74	3.85	3.85	3.97	3.85
14103	* Elec Temp.	DGC	24.24	26.51	23.00	29.43	22.70	23.26	26.02	26.02
14203			19.84	22.05	20.18	19.86	19.28	18.18	22.60	20.39
14303			25.05	29.42	23.42	35.07	22.60	23.70	29.24	29.24
14104	* LV Pwr Sup T.	DGC	23.44	26.28	23.15	28.66	21.70	22.26	26.13	24.47
14204			18.14	20.61	18.90	18.07	17.18	16.62	21.05	17.73
14304			25.36	29.47	24.00	35.25	23.26	23.26	29.34	28.34
14105	* Defl. Pwr. Sup. +10 VDC	TMV	4.00	3.96	3.84	3.84	4.00	3.97	4.00	4.00
14205			3.97	3.94	3.82	3.81	3.95	3.97	3.97	3.97
14305			4.00	3.96	3.96	4.00	4.00	4.00	4.00	4.00
14106	* L. V. P.S. +6V, -6.3 VDC	TMV	3.67	3.63	3.26	3.54	3.67	3.67	3.67	3.67
14206			3.65	3.62	3.34	3.50	3.65	3.65	3.65	3.65
14306			3.70	3.68	3.42	3.72	3.70	3.70	3.70	3.70
14107	* Ther. Elec. Cur.	TMV	2.61	2.61	2.60	2.51	2.77	2.67	2.65	2.77
14207			2.49	2.51	2.44	2.40	2.60	2.55	2.55	2.57
14307			2.57	2.57	2.71	2.44	2.72	2.57	2.67	2.67
14108	* Vid. Fil. Cur.	TMV	2.43	2.50	2.46	2.44	2.55	2.55	2.55	2.55
14208			2.40	2.36	2.39	2.30	2.40	2.40	2.42	2.40
14308			2.58	2.54	2.59	2.47	2.60	2.60	2.57	2.57
14110	* Vid. Tgt. Volt	TMV	2.98	2.96	2.98	2.98	2.97	2.97	2.97	2.97
14210			2.86	2.96	2.60	2.88	3.00	3.00	3.10	3.10
14310			2.63	2.58	2.37	2.52	2.62	2.62	2.67	2.62
14113	* Vert Def V	TMV	2.92	2.81	2.98	2.79	3.35	2.90	2.90	3.35
14213			3.15	3.05	3.16	3.12	3.10	3.12	3.12	3.10
14313			3.59	3.44	3.04	3.47	4.00	4.00	3.50	3.50
14114	* Vid FPT	DGC	19.87	19.21	19.85	19.82	21.98	22.55	21.99	21.99
14214			20.55	19.80	20.46	20.24	20.54	21.06	21.06	21.06
14314			20.65	20.56	20.38	21.57	22.40	22.86	22.86	22.40
14115	* Foc Coil T	DGC	21.04	21.31	21.02	21.41	17.07	17.62	18.18	18.18
14215			20.67	21.26	19.17	21.06	17.62	17.62	18.18	17.62
14315			22.25	22.89	20.61	24.14	18.62	19.18	20.23	20.28

\* - 141XX Refers to Camera 1

142XX Refers to Camera 2

143XX Refers to Camera 3

N - Data not available

Table 16-2. Camera #1 (Blue) Telemetry (Values in TMV)

Func	Name	Units	Mode	Orbits					
				054	5663	10157	15328	17739	21002
14101	Focus I	TMV	Prep	1.68	1.74	1.67	1.77	1.67	1.70
			Read	2.80	2.85	2.80	2.90	2.80	2.82
			Hold	0.65	0.69	0.65	0.75	0.65	0.67
14109	Grid V	TMV	Prep	0.80	0.78	0.80	0.77	0.80	0.77
			Read	2.42	2.42	2.45	2.45	2.42	2.42
			Hold	3.95	3.98	3.95	3.97	3.95	3.95
14111	Cath I	TMV	Prep	3.05	3.02	3.05	3.02	3.02	3.02
			Read	0.83	0.83	0.85	0.82	0.82	0.85
			Hold	0.38	0.37	0.37	0.37	0.37	0.37
14112	Hor Def	TMV	Prep	1.75	1.77	1.77	1.77	1.77	1.77
			Read	3.25	3.25	3.21	3.25	3.22	3.25
			Hold	0.0	0.0	0.0	0.0	0.0	0.0
14120	+500 V	TMV	Prep	0.85	0.90	0.92	0.90	0.95	0.90
			Read	4.05	4.05	4.05	4.05	4.02	4.05
			Hold	4.05	4.05	4.05	4.05	4.02	4.02

Table 16-3. Camera #2 (Yellow) Telemetry (Values in TMV)

Func	Name	Units	Mode	Orbits					
				054	5663	10157	15228	17739	21002
14201	Focus I	TMV	Prep	1.56	1.54	1.50	1.50	1.50	1.50
			Read	2.65	2.65	2.65	2.65	2.62	2.62
			Hold	0.54	0.53	0.54	0.50	0.50	0.50
14209	Grid V	TMV	Prep	0.75	0.80	0.80	0.75	0.77	0.80
			Read	2.25	2.22	2.25	2.20	2.25	2.22
			Hold	4.05	4.11	4.11	4.10	4.07	4.07
14211	Cath I	TMV	Prep	3.05	3.05	3.05	3.05	3.05	3.05
			Read	0.95	0.95	0.95	0.95	0.95	0.95
			Hold	0.37	0.35	0.35	0.35	0.35	0.35
14212	Hor Def	TMV	Prep	1.85	1.87	1.87	1.85	1.85	1.85
			Read	3.25	3.31	3.24	3.30	3.30	3.30
			Hold	0.0	0.0	0.0	0.0	0.0	0.0

14211	Cath I	TMV	Prep Read Hold	3.05 0.95 0.37	3.06 0.95 0.35	3.06 0.95 0.35	3.06 0.95 0.35	3.06 0.95 0.35	3.06 0.95 0.35
14212	Hor Def	TMV	Prep Read Hold	1.85 3.25 0.0	1.87 3.31 0.0	1.87 3.24 0.0	1.85 3.30 0.0	1.85 3.30 0.0	1.85 3.30 0.0
14220	+500V	TMV	Prep Read Hold	1.15 4.25 4.25	1.14 4.27 4.27	1.15 4.27 4.27	1.12 4.27 4.27	1.12 4.27 4.27	1.12 4.27 4.27

Table 16-4. Camera #3 (Red) Telemetry (Values in TMV)

Func	Name	Units	Mode	Orbit					
				054	5663	10157	15228	17739	21002
14301	Focus I	TMV	Prep	1.79	1.85	1.77	1.95	1.77	1.80
			Read	2.85	2.93	2.85	3.02	2.85	2.90
			Hold	0.65	0.72	0.69	0.80	0.67	0.70
14309	Grid V	TMV	Prep	0.75	0.75	0.77	0.77	0.77	0.77
			Read	2.65	2.66	2.66	2.72	2.67	2.70
			Hold	4.08	4.13	4.12	4.12	4.10	4.10
14311	Cath I	TMV	Prep	3.25	3.22	3.23	3.22	3.22	3.22
			Read	0.54	0.55	0.55	0.55	0.55	0.55
			Hold	0.39	0.40	0.40	0.40	0.40	0.40
14312	Hor Def	TMV	Prep	2.05	2.07	2.07	2.07	2.02	2.02
			Read	3.25	3.42	3.42	3.40	3.40	3.40
			Hold	0.0	0.0	0.0	0.0	0.0	0.0
14320	+500 V	TMV	Prep	1.15	1.15	1.15	1.15	1.15	1.15
			Read	4.25	4.27	4.27	4.27	4.25	4.25
			Hold	4.25	4.27	4.27	4.27	4.25	4.25

## SECTION 17

### MULTISPECTRAL SCANNER SUBSYSTEM (MSS)

The MSS Subsystem has operated nominally in this period. Figure 17-1 shows the number of scenes imaged at each geographic location this quarter. Figure 17-2 shows scenes imaged since launch. Only those scenes received by U.S. and Pakistan ground stations are shown. Scenes (55% of total) transmitted to Canada, Italy, Iran, Japan and Brazil are not shown.

Table 17-1 shows typical telemetry values since launch. All are nominal.

On April 24, 1979 all foreign sites were notified that the MSS of Landsat-2 would be substituted for the MSS of Landsat-3 (which has a line start anomaly) as the prime source of MSS data. On May 11, 1979 this substitution was declared official.

Sun calibrations, performed every month, show performance is nominal. To update processing parameters, both low-gain and high-gain data are now being taken. Figures 17-3 to 17-10 show the history of sensor responsivity to stimuli from six selected points on the Cal wedge. Two typical sensors from each of the bands are shown. They are all taken in the mode Prime-low Gain-compressed. Values shown with triangles were taken in the high gain mode. The line length is a satisfactory 3239 words.

133	233233054	114343321111111	2222
134	333333444	3343344	111
135	22222255	43343342	222
136	333333554	543433543	2222
137	333333554	53333344	22212
138	222222554	5544444	1111
139	333333552		
140	33333355	2222	
141	333333552	1	
142	33444441		
143	4455441		
144	155555	11122222	
145	55555		
146	44552	1112222222	
147	444		
148	444		
149	21	21	2222
150	234	234	2222
151	344	2	2222
152	4	1	2222
153			
154			
155			
156			
157			
158			
159			
160			
161			
162			
163			
164			
165			
166			
167			
168			
169			
170			
171			
172			
173			
174			
175			
176			
177			
178			
179			
180			
181			
182			
183			
184			
185			
186			
187			
188			
189			
190			
191			
192			
193			
194			
195			
196			
197			
198			
199			
200			
201			
202			
203			
204			
205			
206			
207			
208			
209			
210			
211			
212			
213			
214			
215			
216			
217			
218			
219			
220			
221			
222			
223			
224			
225			
226			
227			
228			
229			
230			
231			
232			
233			
234			
235			
236			
237			
238			
239			
240			
241			
242			
243			
244			
245			
246			
247			
248			
249			
250			
251			

ORIGINAL PAGE IS  
OF POOR QUALITY

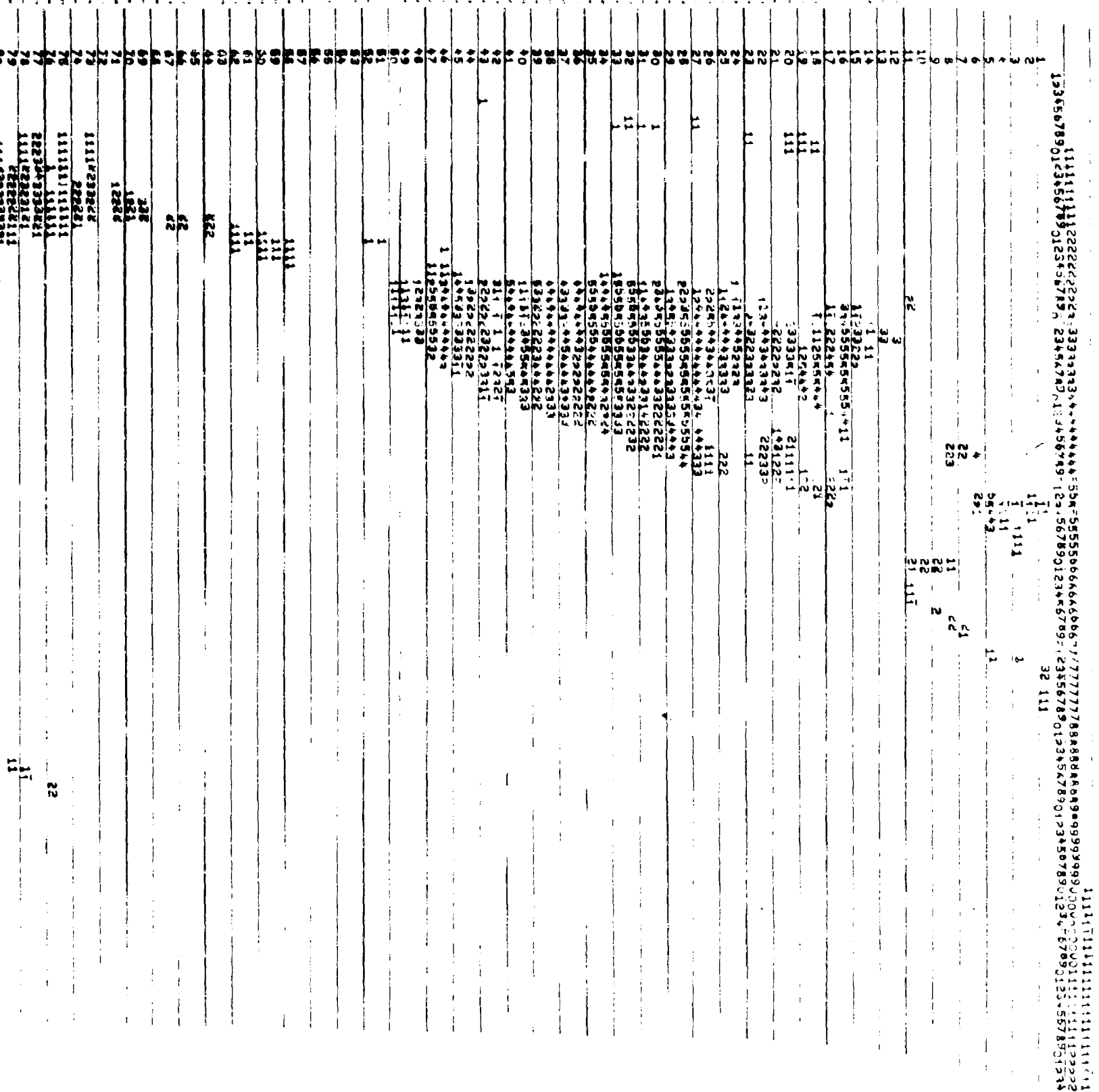
FOLDOUT FRAME

**POLOUT FRAME**

23







ORIGINAL PAGE IS  
OF POOR QUALITY

Figure 17-1. MSS Scenes This Quarter  
Landsat-2 (Cycles 81-85)

T H A S S				
WED SCUD				
TOTAL	200.00	100.00	100.00	100.00
T H A S S				
WED	THU	FRI	SAT	SUN
200.00	200.00	200.00	200.00	200.00

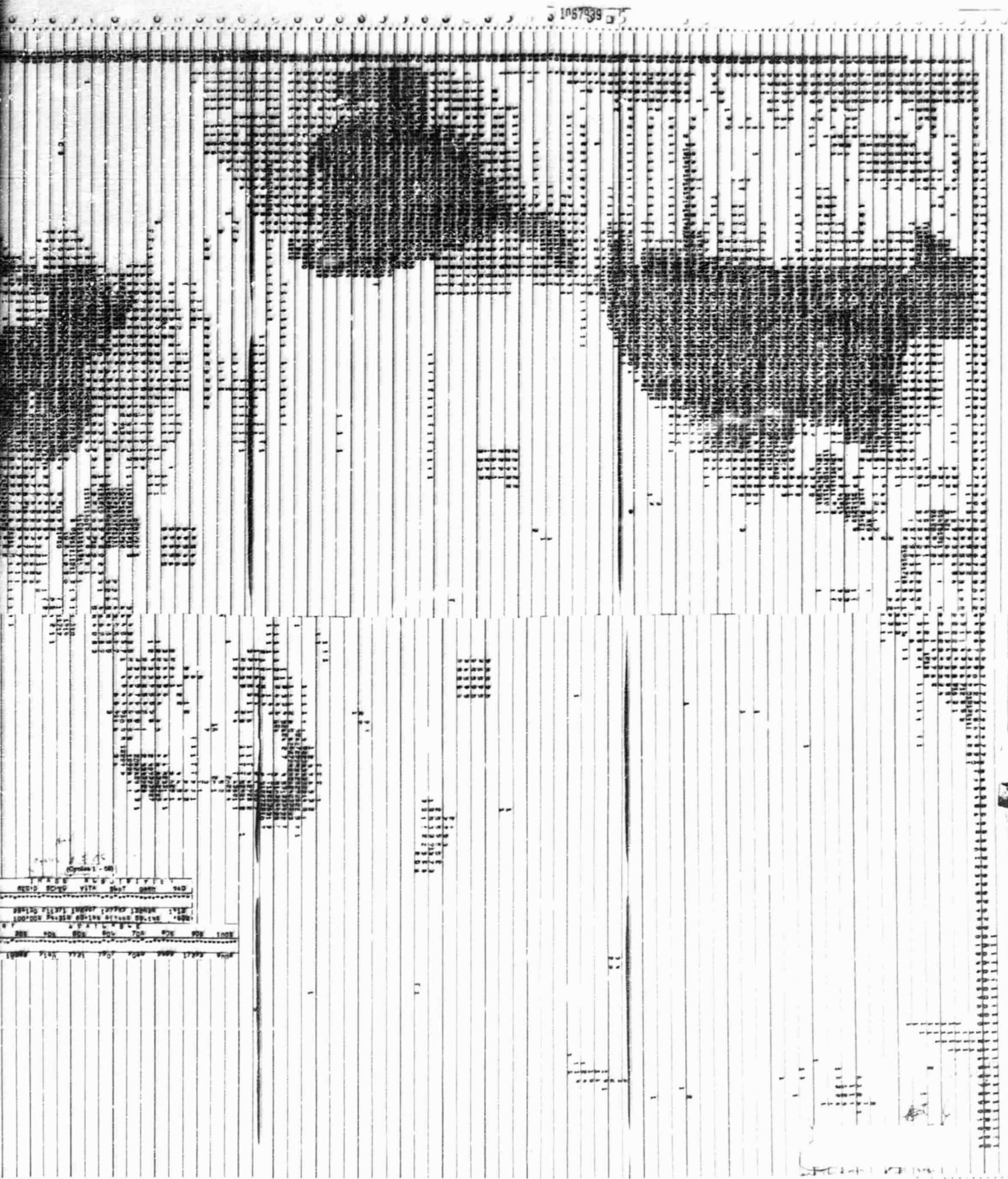


Figure 17-2. MSS Scenes Since Launch  
Landsat-2

2  
ORIGINAL PAGE IS  
OF POOR QUALITY

Table 17-1. MSS Telemetry - Landsat-2

Func	Name	Units	Orbits								
			27	5091	10192	15211	17712	20242	20673	21076	21486
15040	MUX -6 V	TMV	4.05	4.04	4.05	4.05	4.05	4.05	4.05	4.05	4.05
15041	A/D SUPPLY	TMV	5.95	5.95	5.95	5.95	5.95	5.92	5.92	5.92	5.95
15042	AVERAGE DENSITY DATA TRANS	TMV	1.71	1.95	2.62	1.98	2.03	2.12	1.99	2.19	2.13
15043	FIBER OPTICS PLATE 1 TEMP	DGC	18.13	21.75	20.15	21.04	17.74	19.33	18.88	18.23	17.96
15044	FIBER OPTICS PLATE 2 TEMP	DGC	17.87	20.28	18.54	19.50	15.85	17.62	17.09	16.41	16.03
15045	MUX TEMP	DGC	23.38	23.63	24.68	28.27	19.91	25.12	23.87	22.79	21.34
15046	ELEC COVER TEMP	DGC	20.25	22.96	20.01	21.02	17.26	19.37	18.60	18.14	17.71
15047	PWR. SUP. TEMP	DGC	19.45	21.62	20.66	21.75	17.22	19.92	18.82	18.29	17.85
15048	SCAN MIR REG. TEMP	DGC	18.30	21.13	20.94	22.37	16.61	20.19	18.84	18.19	17.37
15049	SCAN MIR DRIVE ELEC. TEMP	DGC	18.36	21.42	21.25	22.64	16.79	20.53	19.02	18.49	17.64
15050	SCAN MIR DRIVE COVER TEMP	DGC	17.26	21.21	20.85	22.25	16.70	20.06	18.93	18.25	17.35
15051	SCAN MIR TEMP	DGC	17.26	20.89	20.46	22.06	16.52	20.55	18.72	17.98	17.12
15052	ROT. SHUT HOUSING TEMP	DGC	23.26	20.28	18.58	19.58	15.85	17.74	17.17	16.51	16.17
15053	SCAN MIR REG VOLT	TMV	4.70	4.57	4.63	4.63	4.57	4.58	4.63	4.63	4.63
15054	CAL LAMP CURRENT	TMV	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
15055	BAND 1 15 VDC	TMV	4.98	4.97	4.97	4.97	4.97	4.97	4.97	4.97	4.97
15056	BAND 2 15 VDC	TMV	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
15057	BAND 3 15 VDC	TMV	4.95	4.95	4.95	4.95	4.95	4.94	4.95	4.95	4.95
15058	BAND 4 15 VDC	TMV	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
15059	TLM -15 V	TMV	5.06	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07
15060	+12 V/-6 V	TMV	5.03	5.02	5.01	5.02	5.01	5.01	5.02	5.02	5.02
15061	LOGIC +5 V	T V	4.81	4.83	4.85	4.83	4.84	4.85	4.92	4.88	4.83
15062	RECT. +19 V	TMV	5.03	5.05	5.05	5.05	5.05	5.02	5.05	5.05	5.06
15063	RECT. -19 V	TMV	3.60	3.60	3.60	3.60	3.59	3.61	3.60	3.60	3.60
15064	BAND 1 HVA	TMV	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95	4.95
15065	BAND 1 HVB	TMV	F	F	F	F	F	F	F	F	F
15066	BAND 2 HVA	TMV	4.70	4.75	4.73	4.73	4.72	4.72	4.72	4.72	4.72
15067	BAND 2 HVB	TMV	F	F	F	F	F	F	F	F	F
15068	BAND 3 HVA	TMV	4.72	4.73	4.75	4.75	4.75	4.75	4.75	4.75	4.75
15069	BAND 3 HVB	TMV	F	F	F	F	F	F	F	F	F
15070	SHUT MOT. CONTR. INTEG	T V	2.60	2.60	2.60	2.58	2.59	2.59	2.59	2.59	2.60
15071	SCAN MIRROR DRIVE CLOCK	TMV	2.00	2.00	2.01	2.00	1.97	2.00	1.99	1.95	2.01

F = Unit OFF



Δ = HIGH GAIN DATA POINT

2

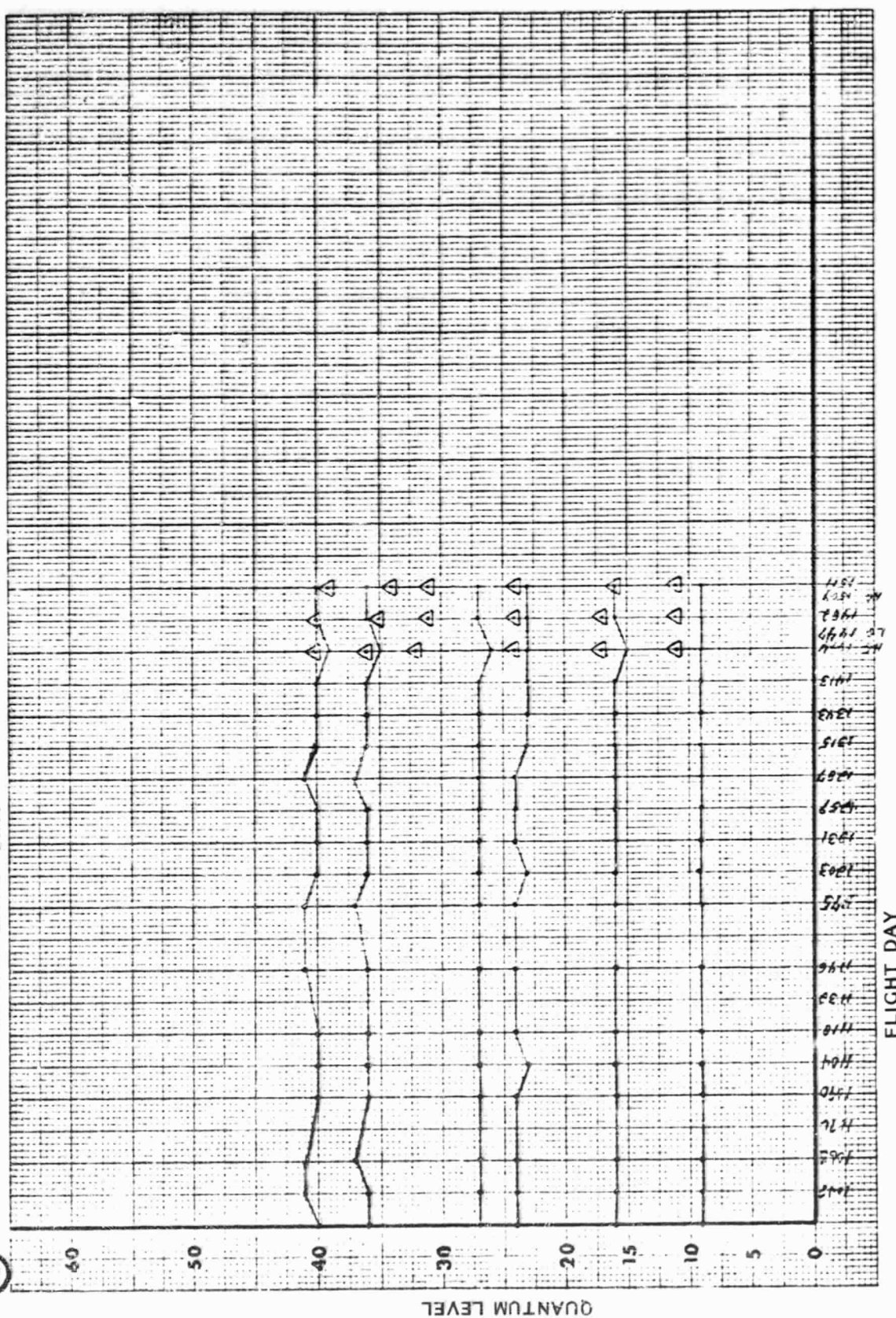


Figure 17-3. Landsat-2 Sensor 2 Response to Six Positions in the Cal Wedge

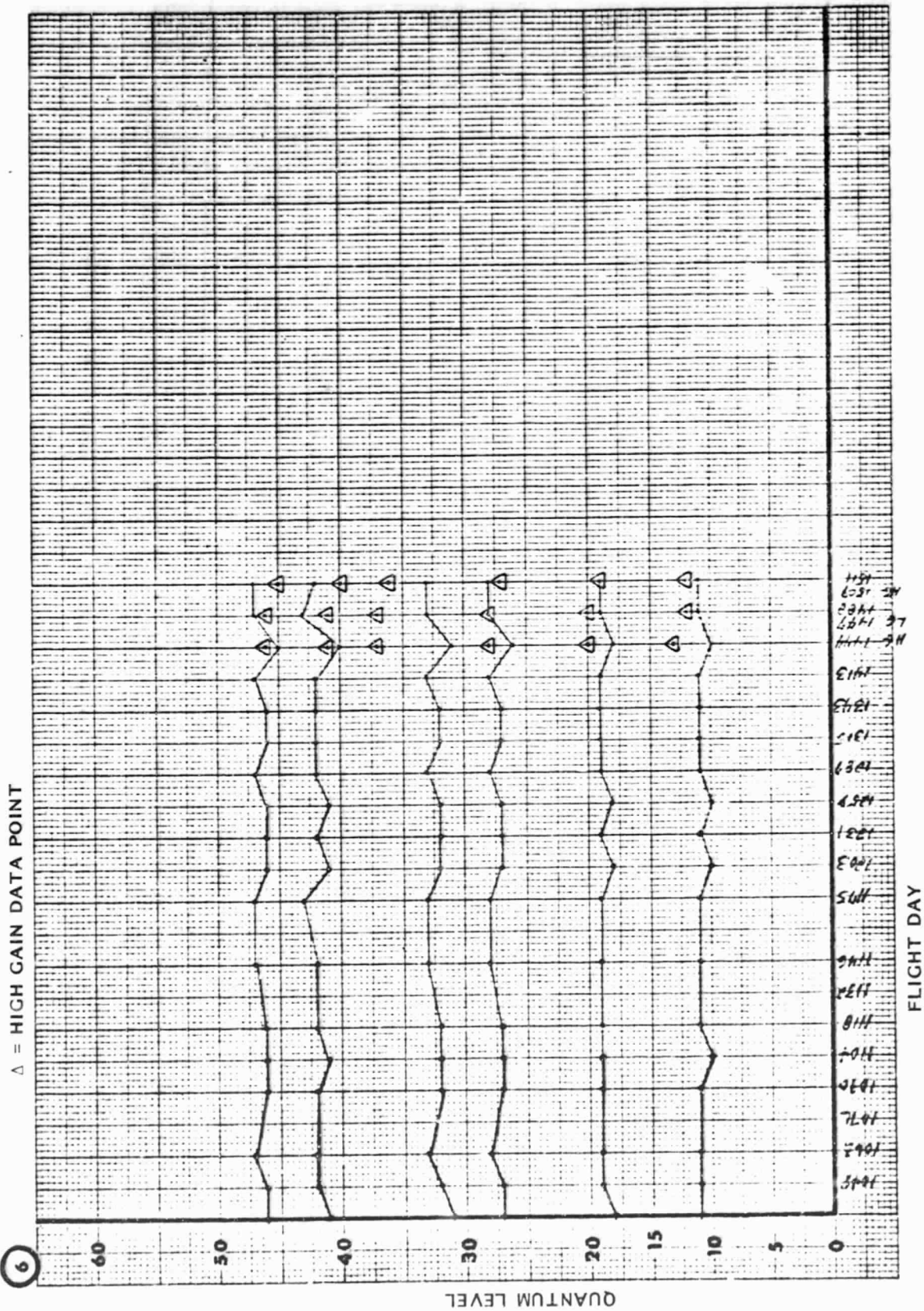
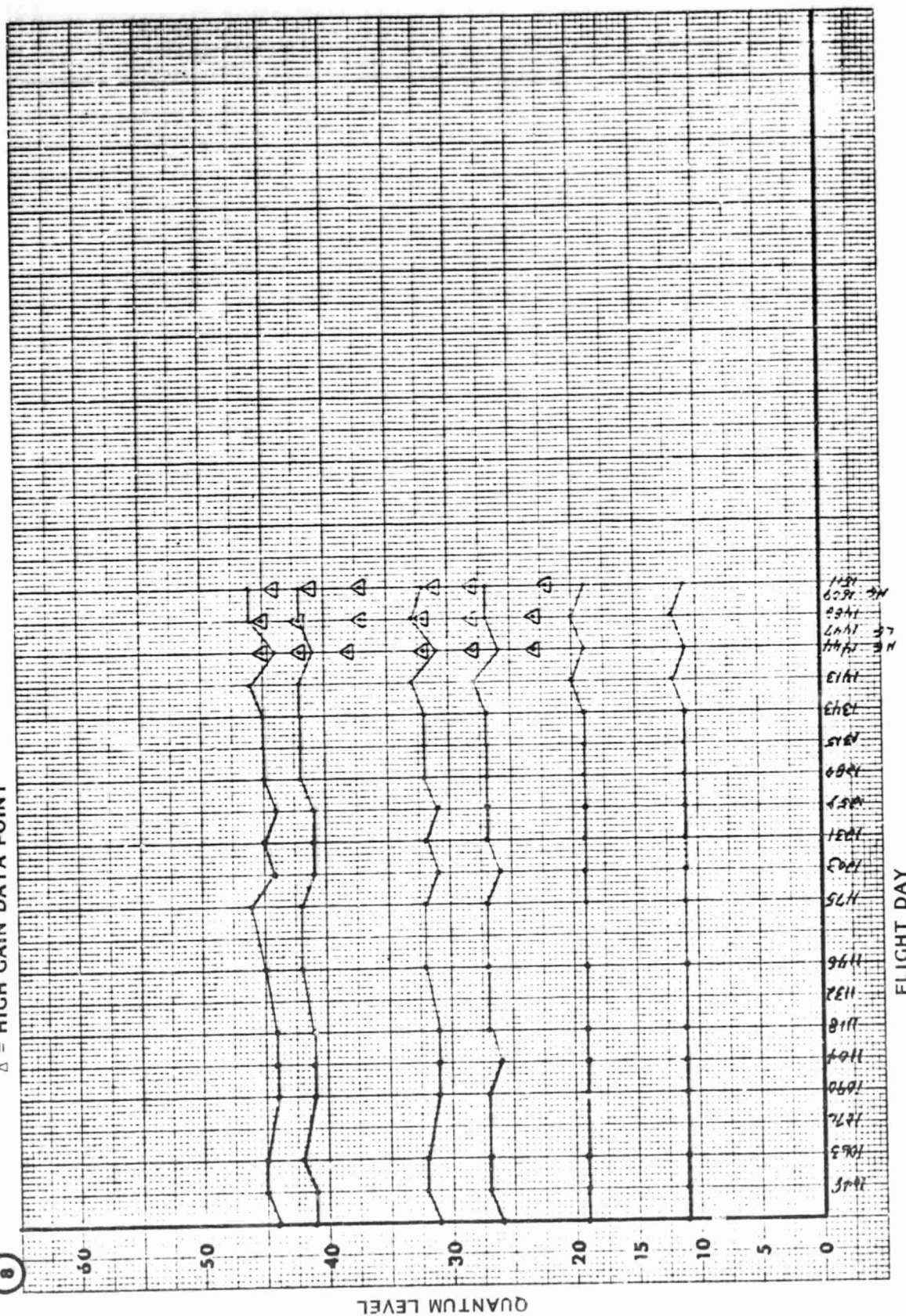


Figure 17-4. Landsat-2 Sensor 6 Response to Six Positions in the Cal Wedge

Δ = HIGH GAIN DATA POINT

8







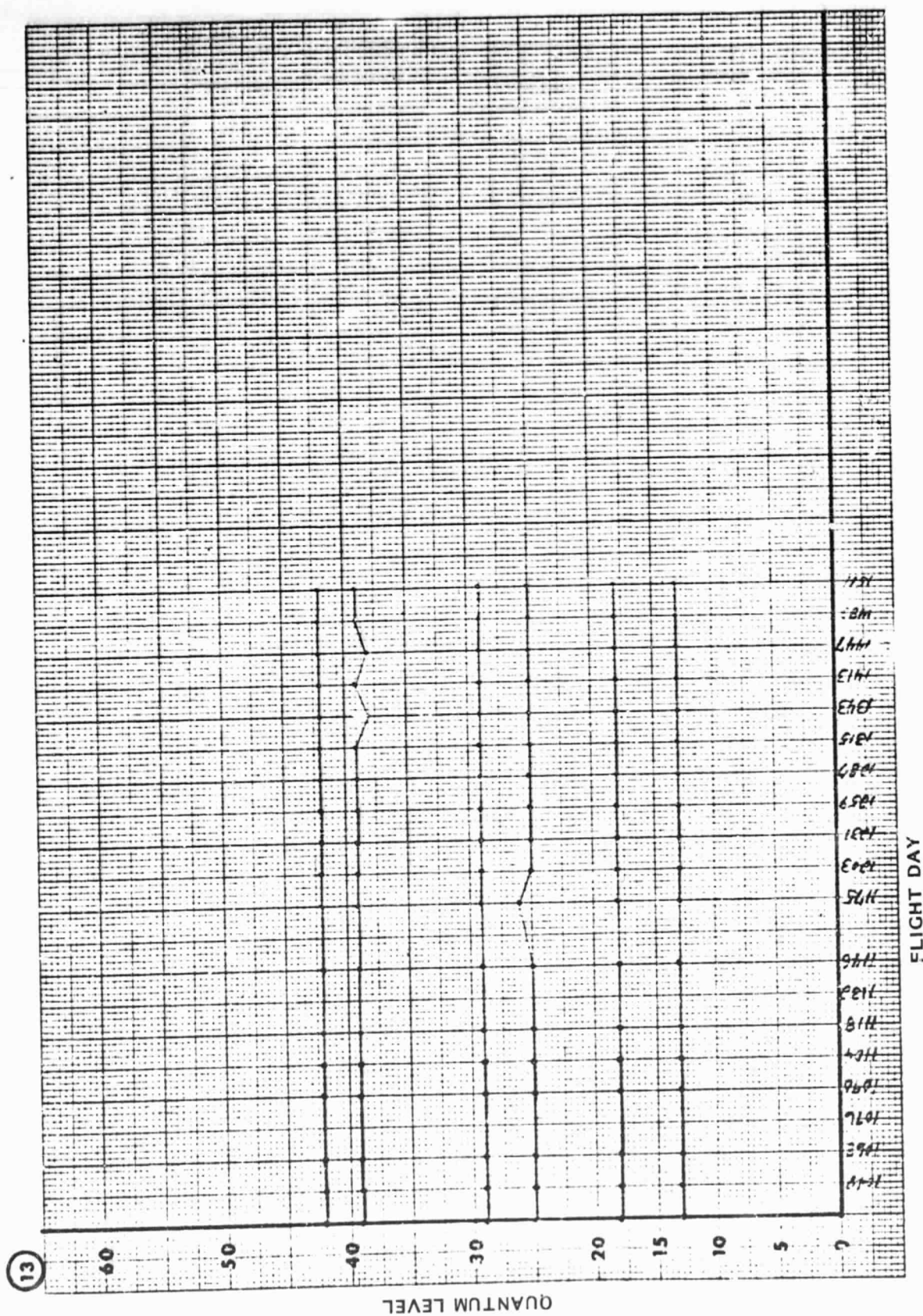


Figure 17-7. Landsat-2 Sensor 13 Response to Six Positions in the Cal Wedge

17

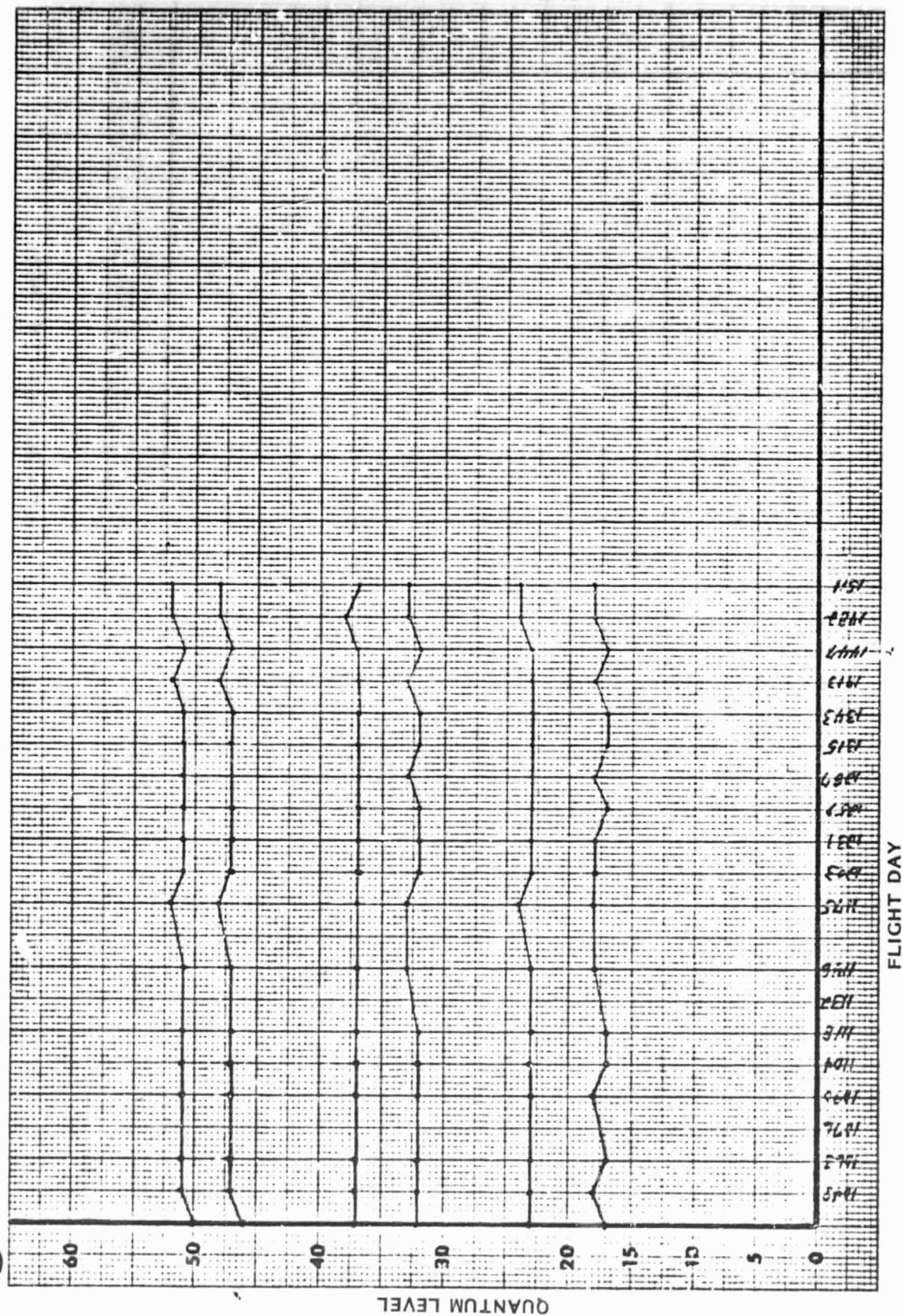
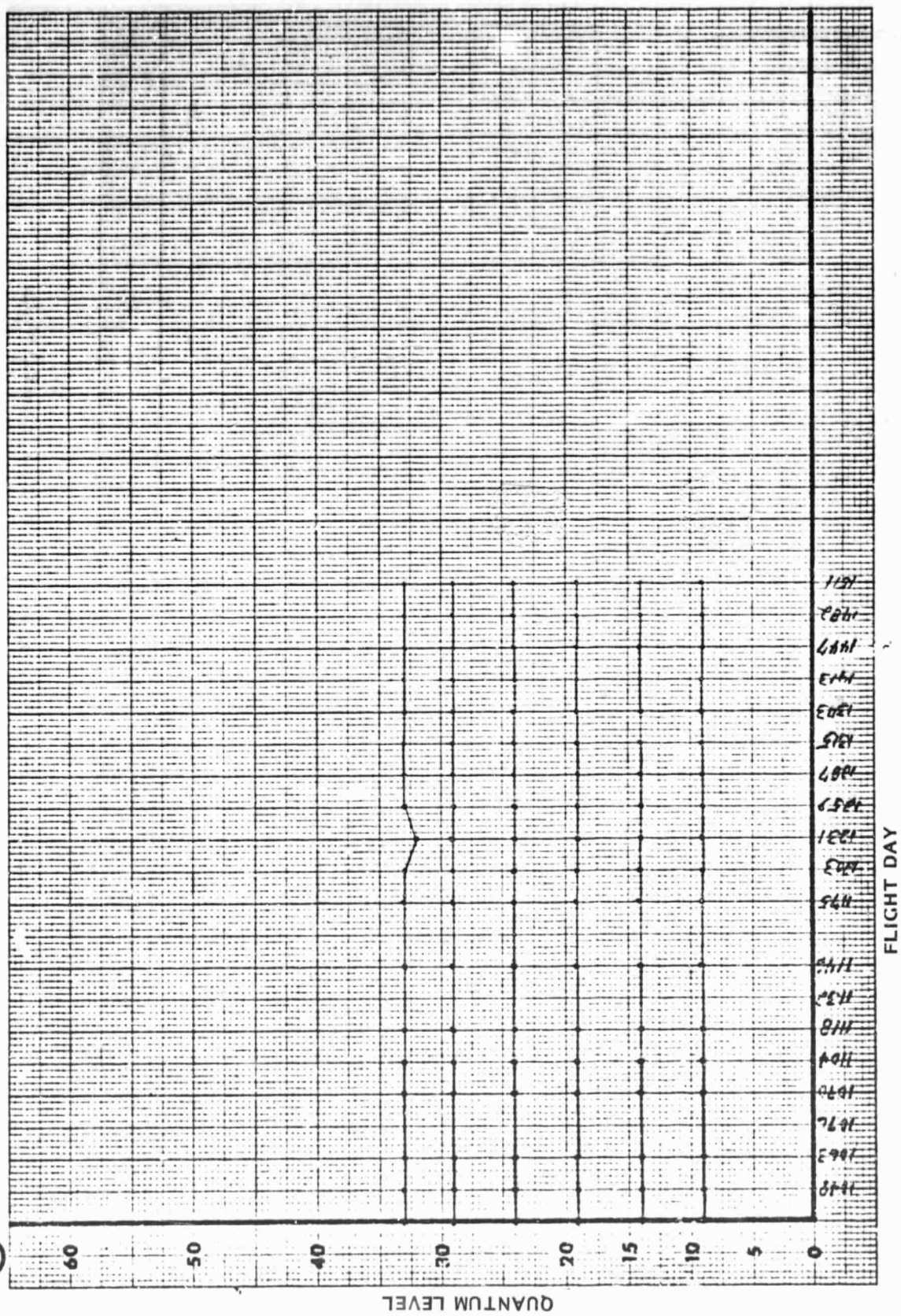


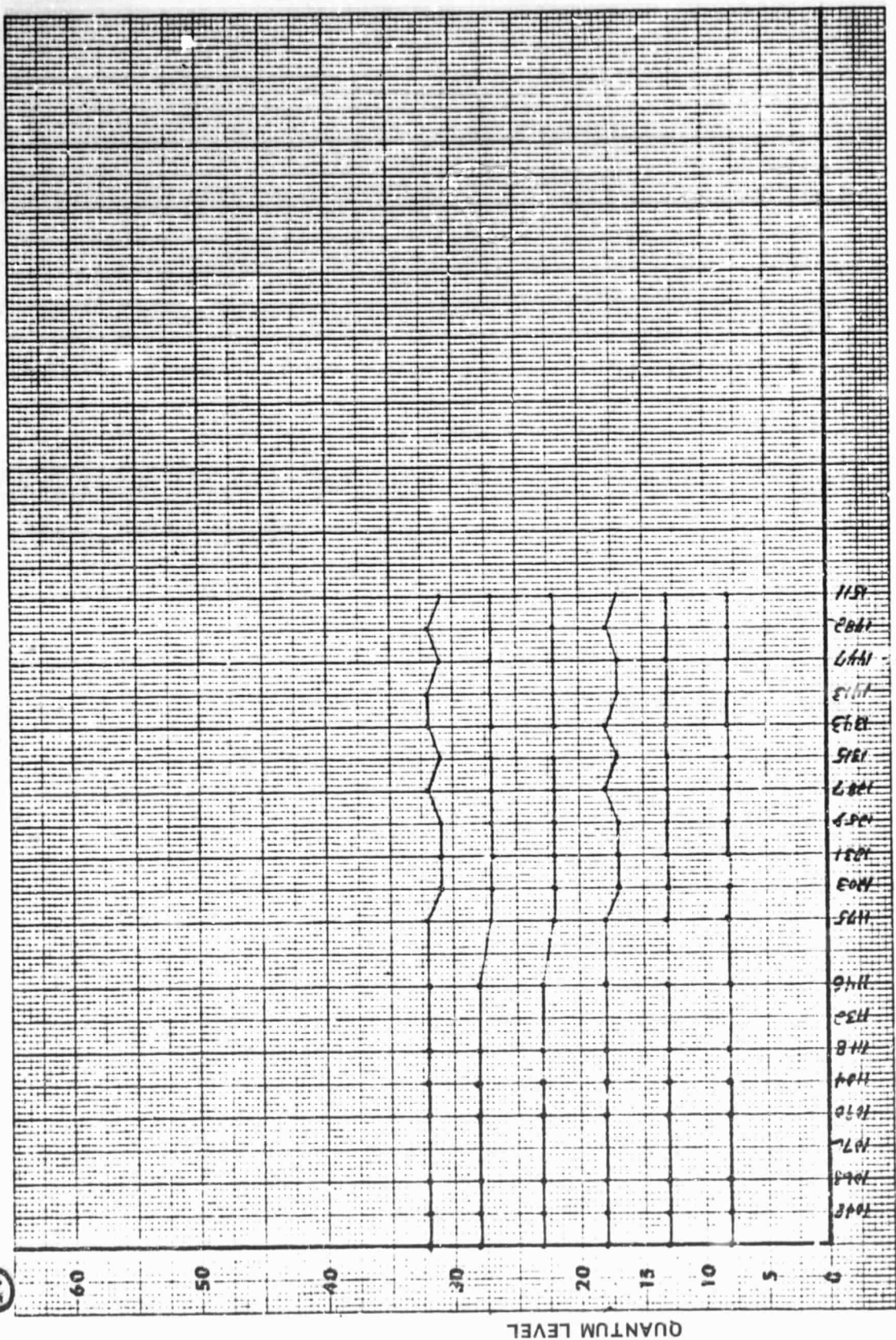
Figure 17-8. Landsat-2 Sensor 17 Response to Six Positions in the Cal Wedge



22



24



FLIGHT DAY

Figure 17-10. Landsat-2 Sensor 24 Response to Six Positions in the Cal Wedge

C-2

SECTION 18  
DATA COLLECTION SUBSYSTEM (DCS)

The DCS Subsystem was turned OFF during Orbit 15857 on 4 March 1978, and the function assumed by Landsat-3. The subsystem is capable of resuming operational status if desired.

## Appendix A. Landsat-2 Anomalies and Observations

Date	Anomaly/Observation	How Observed	Comments
Prelaunch	Forward Scanner Pressure Leak	Spacecraft Integration	Before launch pressure increased. After launch pressure decreased. No anticipated effect on Scanner or S/C mission.
Prelaunch	Defective TLM Functions 1264, 4002, 13200	Spacecraft Integration	Functions measure non-critical temperatures. Sensors failed prior to launch. Mission unaffected.
3/8/75	Unencoded command 781, CIU Channel B OF, received by spacecraft from RF interference. Commands 782 or 786, switch comedece; and commands 780 or 784, switch PWM regulator, received at other times.	On-Line	Non-Landsat OCC Authorized Unencoded command: received in Orbit 619, 640, 743, 1875, 1700, 2605, 3164, 4769, 5025, 7925, 8721, 8804, 9523, 9863, 10268, 10466, 10533, 10583, 10603, 13309, 14508, 14864, 15553, 16279, 17394, 19792.
3/17/75	MMCA Pitch Flux Density TLM Drift	Off-Line	Telemetry decreased 5 counts and indicates increased flux density on charged magnet. Probable sensor drift. No apparent effect on S/C performance
4/5/75	WBVTR-1 Rewind Failure (MDR E01252)	On-Line	WBVTR-1 failed to execute Rewind command or prematurely terminated rewinds due to false BOT signal. Subsequent commands or Fool-Logic techniques allowed return to operation. Investigation Committee report issued. Problems occurred Orbit 1021, 1532, 1568, 2238. Operation restricted to 300 thru 1500 feet.
6/9/75	WBVTR-2 had Short Rewind (MDR E01255)	On-Line	WBVTR-2 started rewind but stopped prematurely in Orbit 1919 and again in Orbit 3854. Investigation Committee did not define a probable cause but assigned a momentary False BOT as reason for short rewind. Unit remains operational.
8/3/75	WBVTR-1 data did not provide sync to ground station (MDR D04939)	On-Line	One head circuit of WBVTR-1 failed to operate. 25% of data lost in data stream. Operation discontinued until early 1976, when it was used with RBV only.
11/14/75	MSS False End-of-Line Codes (MDR D04940)	Off-Line	Occasional End-of-Line codes occurring in preamble or along video data. Creates 4 black and 4 white words in scene data. Occurs over magnetic anomalies with low incidence rate. Operation continued
1/25/76	Solar Array Current Notch (MDR D04934)	On-Line	In Orbit 5123, abnormal drops in solar array current appeared for portion of satellite day. S/C operation unaffected because solar array has excess power to date.
7/20/76	Battery 6 Turned Off. Subsequent Battery 1, 2, 5, 6, 7 and 8 Turned Off.	On-Line & Off-Line	Battery 6 decreased in load share and rose in charge share thereby causing overcharge. Temperature increased and unit was turned off in Orbit 7601. (Returned to service in Orbit 7992.) See Table 3-2 for history of all battery restoration cycles.
7/29/76	WBVTR-2 Automatic shutdown by SMART	On-Line	SMART circuits detected high headwheel currents in Orbit 7720 and shutdown WBVTR-2. WBVTR-2 operation was normal; high headwheel current assigned to slipped phase. Normal operation resumed after reset.
12/21/76	WBVTR-2 had 30% high P/B speed (MDRD04936)	On-Line	Ground equipment would not synch on WBVTR-2 P/B data during Orbit 9738 P/B. Analysis showed P/B speed was 30% high. Toggling, record to P/B, restored normal operation. Occurred frequently this quarter requiring replay of garbled data.
1/15/77	WBVTR-1 second head failed (MDR D04937)	On-Line	Observation of CRT trace during WBVTR-1 RBV P/B data in Orbit 10086 showed second head failed. Operation discontinued.
9/12/77	Payload Automatic Inhibit from ECAM by SMART	On-Line	SMART circuits detected S/C unreg bus low voltage on Orbit 13342 caused by operation problems. Inhibited further payload operation from ECAM. Reset returned S/C to normal. Recurred during Orbits 14865, 15013, 15156, 16685, 16698, 16744. Reset returned S/C to normal each time.
1/3/79	COMSTOR went to an indeterminate mode MDR #D04546	On-Line	During loading of ECAM in Orbit 20193 a command abort occurred during or at end of "Serial Data Transfer On," command 907. COMSTOR went from Activate to an indeterminate mode. COMSTOR was reloaded and is performing normally.
1/15/79	NBT-1 failed during P/B MDR #D0947	On-Line	NBT-1 halted after 35 seconds of P/B in Orbit 20266. Subsequent operation attempts unsuccessful. Unit has 18320 in-flight operation hours. Motor current is high.

APPENDIX B  
LANDSAT-2  
SPACECRAFT ORBIT REFERENCE TABLES  
FROM OCTOBER 1978 THROUGH JANUARY 1980  
ORBIT 18788 TO 25591  
FLIGHT DAY 1348 THROUGH 1835



Landsat-2  
October 1978

Date	GMT Day	Flight Day	Spacecraft Orbit	Cycle Orbits	Cycle Day	Cycle
1	274	1348	18788-18801	155-168	12	74
2	275	1349	18802-18814	169-181	13	74
3	276	1350	18815-18828	182-195	14	74
4	277	1351	18829-18842	196-209	15	74
5	278	1352	18843-18856	210-223	16	74
6	279	1353	18857-18870	224-237	17	74
7	280	1354	18871-18884	238-251	18	74
8	281	1355	18885-18898	1- 14	1	75
9	282	1356	18899-18912	15- 28	2	75
10	283	1357	18913-18926	29- 42	3	75
11	284	1358	18927-18940	43- 56	4	75
12	285	1359	18941-18954	57- 70	5	75
13	286	1360	18955-18968	71- 84	6	75
14	287	1361	18969-18982	85- 98	7	75
15	288	1362	18983-18996	99-112	8	75
16	289	1363	18997-19010	113-126	9	75
17	290	1364	19011-19024	127-140	10	75
18	291	1365	19025-19038	141-154	11	75
19	292	1366	19039-19052	155-168	12	75
20	293	1367	19053-19065	169-181	13	75
21	294	1368	19066-19079	182-195	14	75
22	295	1369	19080-19093	196-209	15	75
23	296	1370	19094-19107	210-223	16	75
24	297	1371	19108-19121	224-237	17	75
25	298	1372	19122-19135	238-251	18	75
26	299	1373	19136-19149	1- 14	1	76
27	300	1374	19150-19163	15- 28	2	76
28	301	1375	19164-19177	29- 42	3	76
29	302	1376	19178-19191	43- 56	4	76
30	303	1377	19192-19205	57- 70	5	76
31	304	1378	19206-19219	71- 84	6	76

ORIGINAL PAGE IS  
OF POOR QUALITY

Landsat-2  
November 1978

Date	GMT Day	Flight Day	Spacecraft Orbit	Cycle Orbits	Cycle Day	Cycle
1	305	1379	19220-19233	85- 98	7	76
2	306	1380	19234-19247	99-112	8	76
3	307	1381	19248-19261	113-126	9	76
4	308	1382	19262-19275	127-140	10	76
5	309	1383	19276-19289	141-154	11	76
6	310	1384	19290-19303	155-168	12	76
7	311	1385	19304-19316	169-181	13	76
8	312	1386	19317-19330	182-195	14	76
9	313	1387	19331-19344	196-209	15	76
10	314	1388	19345-19358	210-223	16	76
11	315	1389	19359-19372	224-237	17	76
12	316	1390	19373-19386	238-251	18	76
13	317	1391	19387-19400	1- 14	1	77
14	318	1392	19401-19414	15- 28	2	77
15	319	1393	19415-19428	29- 42	3	77
16	320	1394	19429-19442	43- 56	4	77
17	321	1395	19443-19456	57- 70	5	77
18	322	1396	19457-19470	71- 84	6	77
19	323	1397	19471-19484	85- 98	7	77
20	324	1398	19485-19498	99- 112	8	77
21	325	1399	19499-19512	113-126	9	77
22	326	1400	19513-19526	127-140	10	77
23	327	1401	19527-19540	141-154	11	77
24	328	1402	19541-19554	155-168	12	77
25	329	1403	19555-19567	169-181	13	77
26	330	1404	19568-19581	182-195	14	77
27	331	1405	19582-19595	196-209	15	77
28	332	1406	19596-19609	210-223	16	77
29	333	1407	19610-19623	224-237	17	77
30	334	1408	19624-19637	238-251	18	77

Landsat-2  
December 1978

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	335	1409	19638-19651	1- 14	1	78
2	336	1410	19652-19665	15- 28	2	78
3	337	1411	19666-19679	29- 42	3	78
4	338	1412	19680-19693	43- 56	4	78
5	339	1413	19694-19707	57- 70	5	78
6	340	1414	19708-19721	71- 84	6	78
7	341	1415	19722-19735	85- 98	7	78
8	342	1416	19736-19749	99-112	8	78
9	343	1417	19750-19763	113-126	9	78
10	344	1418	19764-19777	127-140	10	78
11	345	1419	19778-19791	141-154	11	78
12	346	1420	19792-19805	155-168	12	78
13	347	1421	19806-19818	169-181	13	78
14	348	1422	19819-19832	182-195	14	78
15	349	1423	19833-19846	196-209	15	78
16	350	1424	19847-19860	210-223	16	78
17	351	1425	19861-19874	224-237	17	78
18	352	1426	19875-19888	238-251	18	78
19	353	1427	19889-19902	1- 14	1	79
20	354	1428	19903-19916	15- 28	2	79
21	355	1429	19917-19930	29- 42	3	79
22	356	1430	19931-19944	43- 56	4	79
23	357	1431	19945-19958	57- 70	5	79
24	358	1432	19959-19972	71- 84	6	79
25	359	1433	19973-19986	85- 98	7	79
26	360	1434	19987-20000	99-112	8	79
27	361	1435	20001-20014	113-126	9	79
28	362	1436	20015-20028	127-140	10	79
29	363	1437	20029-20042	141-154	11	79
30	364	1438	20043-20056	155-168	12	79
31	365	1439	20057-20069	169-181	13	79

Landsat-2  
January 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	1	1440	20070-20083	182-195	14	80
2	2	1441	20084-20097	196-209	15	80
3	3	1442	20098-20111	210-223	16	80
4	4	1443	20112-20125	224-237	17	80
5	5	1444	20126-20139	238-251	18	80
6	6	1445	20140-20153	1- 14	1	81
7	7	1446	20154-20167	15- 28	2	81
8	8	1447	20168-20181	29- 42	3	81
9	9	1448	20182-20195	43- 56	4	81
10	10	1449	20196-20209	57- 70	5	81
11	11	1450	20210-20223	71- 84	6	81
12	12	1451	20224-20237	85- 98	7	81
13	13	1452	20238-20251	99-112	8	81
14	14	1453	20252-20265	113-126	9	81
15	15	1454	20266-20279	127-140	10	81
16	16	1455	20280-20293	141-154	11	81
17	17	1456	20294-20306	155-167	12	81
18	18	1457	20307-20320	168-181	13	81
19	19	1458	20321-20334	182-195	14	81
20	20	1459	20335-20348	196-209	15	81
21	21	1460	20349-20362	210-223	16	81
22	22	1461	20363-20376	224-237	17	81
23	23	1462	20377-20390	238-251	18	81
24	24	1463	20391-20404	1- 14	1	82
25	25	1464	20405-20418	15- 28	2	82
26	26	1465	20419-20432	29- 42	3	82
27	27	1466	20433-20446	43- 56	4	82
28	28	1467	20447-20460	57- 70	5	82
29	29	1468	20461-20474	71- 84	6	82
30	30	1469	20475-20488	85- 98	7	82
31	31	1470	20489-20502	99-112	8	82

Landsat-2  
February 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	32	1471	20503-20516	113-126	9	82
2	33	1472	20517-20530	127-140	10	82
3	34	1473	20531-20544	141-154	11	82
4	35	1474	20545-20557	155-167	12	82
5	36	1475	20558-20571	168-181	13	82
6	37	1476	20572-20585	182-195	14	82
7	38	1477	20586-20599	196-209	15	82
8	39	1478	20600-20613	210-223	16	82
9	40	1479	20614-20627	224-237	17	82
10	41	1480	20628-20641	238-251	18	82
11	42	1481	20642-20655	1- 14	1	83
12	43	1482	20656-20669	15- 28	2	83
13	44	1483	20670-20683	29- 42	3	83
14	45	1484	20684-20699	43- 56	4	83
15	46	1485	20698-20711	57- 70	5	83
16	47	1486	20712-20725	71- 84	6	83
17	48	1487	20726-20739	85- 98	7	83
18	49	1488	20740-20753	99-112	8	83
19	50	1489	20754-20767	113-126	9	83
20	51	1490	20768-20781	127-140	10	83
21	52	1491	20782-20795	141-154	11	83
22	53	1492	20796-20808	155-167	12	83
23	54	1493	20809-20822	168-181	13	83
24	55	1494	20823-20836	182-195	14	83
25	56	1495	20837-20850	196-209	15	83
26	57	1496	20851-20864	210-223	16	83
27	58	1497	20865-20878	224-237	17	83
28	59	1498	20879-20892	238-251	18	83

## Landsat-2

March 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	60	1499	20893-20906	1- 14	1	84
2	61	1500	20907-20920	15- 28	2	84
3	62	1501	20921-20934	29- 42	3	84
4	63	1502	20935-20948	43- 56	4	84
5	64	1503	20949-20962	57- 70	5	84
6	65	1504	20963-20976	71- 84	6	84
7	66	1505	20977-20990	85- 98	7	84
8	67	1506	20991-21004	99-112	8	84
9	68	1507	21005-21018	113-126	9	84
10	69	1508	21019-21032	127-140	10	84
11	70	1509	21033-21046	141-154	11	84
12	71	1510	21047-21059	155-167	12	84
13	72	1511	21060-21073	168-181	13	84
14	73	1512	21074-21087	182-195	14	84
15	74	1513	21088-21101	196-209	15	84
16	75	1514	21102-21115	210-223	16	84
17	76	1515	21116-21129	224-237	17	84
18	77	1516	21130-21143	238-251	18	84
19	78	1517	21144-21157	1- 14	1	85
20	79	1518	21158-21171	15- 28	2	85
21	80	1519	21172-21185	29- 42	3	85
22	81	1520	21186-21199	43- 56	4	85
23	82	1521	21200-21213	57- 70	5	85
24	83	1522	21214-21227	71- 84	6	85
25	84	1523	21228-21241	85- 98	7	85
26	85	1524	21242-21255	99-112	8	85
27	86	1525	21256-21269	113-126	9	85
28	87	1526	21270-21283	127-140	10	85
29	88	1527	21284-21297	141-154	11	85
30	89	1528	21298-21310	155-167	12	85
31	90	1529	21311-21324	168-181	13	85

## Landsat-2

April 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	91	1530	21325-21338	182-195	14	85
2	92	1531	21339-21352	196-209	15	85
3	93	1532	21353-21366	210-223	16	85
4	94	1533	21367-21380	224-237	17	85
5	95	1534	21381-21394	238-251	18	85
6	96	1535	21395-21408	1- 14	1	86
7	97	1536	21409-21422	15- 29	2	86
8	98	1537	21423-21436	29- 42	3	86
9	99	1538	21437-21450	43- 56	4	86
10	100	1539	21451-21464	57- 70	5	86
11	101	1540	21465-21478	71- 84	6	86
12	102	1541	21479-21492	85- 98	7	86
13	103	1542	21493-21506	99-112	8	86
14	104	1543	21507-21520	113-126	9	86
15	105	1544	21521-21534	127-140	10	86
16	106	1545	21535-21548	141-154	11	86
17	107	1546	21549-21561	155-167	12	86
18	108	1547	21562-21575	168-181	13	86
19	109	1548	21576-21589	182-195	14	86
20	110	1549	21590-21603	196-209	15	86
21	111	1550	21604-21617	210-223	16	86
22	112	1551	21618-21631	224-237	17	86
23	113	1552	21632-21645	238-251	18	86
24	114	1553	21646-21659	1- 14	1	87
25	115	1554	21660-21673	15- 28	2	87
26	116	1555	21674-21687	29- 42	3	87
27	117	1556	21688-21701	43- 56	4	87
28	118	1557	21702-21715	57- 70	5	87
29	119	1558	21716-21729	71- 84	6	87
30	120	1559	21730-21743	85- 98	7	87

## Landsat-2

May 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	121	1560	21744-21757	99-112	8	87
2	121	1561	21758-21771	113-126	9	87
3	123	1562	21772-21785	127-140	10	87
4	124	1563	21786-21798	141-153	11	87
5	125	1564	21799-21812	154-167	12	87
6	126	1565	21813-21826	168-181	13	87
7	127	1566	21827-21840	182-195	14	87
8	128	1567	21841-21854	196-209	15	87
9	129	1568	21855-21868	210-223	16	87
10	130	1569	21869-21882	224-237	17	87
11	131	1570	21883-21896	238-251	18	87
12	132	1571	21897-21910	1- 14	1	88
13	133	1572	21911-21924	15- 28	2	88
14	134	1573	21925-21938	29- 42	3	88
15	135	1574	21939-21952	43- 56	4	88
16	136	1575	21953-21966	57- 70	5	88
17	137	1576	21967-21980	71- 84	6	88
18	138	1577	21981-21994	85- 98	7	88
19	139	1578	21995-22008	99-112	8	88
20	140	1579	22009-22022	113-126	9	88
21	141	1580	22023-22036	127-140	10	88
22	142	1581	22037-22049	141-153	11	88
23	143	1582	22050-22063	154-169	12	88
24	144	1583	22064-22077	168-181	13	88
25	145	1584	22078-22091	182-195	14	88
26	146	1585	22092-22105	196-209	15	88
27	147	1586	22106-22119	210-223	16	88
28	148	1587	22120-22133	224-237	17	88
29	149	1588	22134-22147	238-251	18	88
30	150	1589	22148-22161	1- 14	1	89
31	151	1590	22162-22175	15- 28	2	89



Landsat-2

June 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	152	1591	22176-22189	29- 42	3	89
2	153	1592	22190-22203	43- 56	4	89
3	154	1593	22204-22217	57- 70	5	89
4	155	1594	22218-22231	71- 84	6	89
5	156	1595	22232-22245	85- 98	7	89
6	157	1596	22246-22259	99-112	8	89
7	158	1597	22260-22273	113-126	9	89
8	159	1598	22274-22287	127-140	10	89
9	160	1599	22288-22300	141-153	11	89
10	161	1600	22301-22314	154-167	12	89
11	162	1601	22315-22328	168-181	13	89
12	163	1602	22329-22342	182-195	14	89
13	164	1603	22343-22356	196-209	15	89
14	165	1604	22357-22370	210-223	16	89
15	166	1605	22371-22384	224-237	17	89
16	167	1606	22385-22398	238-251	18	89
17	168	1607	22399-22412	1- 14	1	90
18	169	1608	22413-22426	15- 28	2	90
19	170	1609	22427-22440	29- 42	3	90
20	171	1610	22441-22454	43- 56	4	90
21	172	1611	22455-22468	57- 70	5	90
22	173	1612	22469-22482	71- 84	6	90
23	174	1613	22483-22496	85- 98	7	90
24	175	1614	22497-22510	99-112	8	90
25	176	1615	22511-22524	113-126	9	90
26	177	1616	22525-22538	127-140	10	90
27	178	1617	22539-22551	141-153	11	90
28	179	1618	22552-22565	154-167	12	90
29	180	1619	22566-22579	168-181	13	90
30	181	1620	22580-22593	182-195	14	90

## Landsat-2

July 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	182	1621	22594-22607	196-209	15	90
2	183	1622	22608-22621	210-223	16	90
3	184	1623	22622-22635	224-237	17	90
4	185	1624	22636-22649	238-251	18	90
5	186	1625	22650-22663	1- 14	1	91
6	187	1626	22664-22677	15- 28	2	91
7	188	1627	22678-22691	29- 42	3	91
8	189	1628	22692-22705	43- 56	4	91
9	190	1629	22706-22719	57- 70	5	91
10	191	1630	22720-22733	71- 84	6	91
11	192	1631	22734-22747	85- 98	7	91
12	193	1632	22748-22761	99-112	8	91
13	194	1633	22762-22775	113-126	9	91
14	195	1634	22776-22789	127-140	10	91
15	196	1635	22790-22802	141-153	11	91
16	197	1636	22803-22816	154-167	12	91
17	198	1637	22817-22830	168-181	13	91
18	199	1638	22831-22844	182-195	14	91
19	200	1639	22845-22858	196-209	15	91
20	201	1640	22859-22872	210-223	16	91
21	202	1641	22873-22886	224-237	17	91
22	203	1642	22887-22900	238-251	18	91
23	204	1643	22901-22914	1- 14	1	92
24	205	1644	22915-22928	15- 28	2	92
25	206	1645	22929-22942	29- 42	3	92
26	207	1646	22943-22956	43- 56	4	92
27	208	1647	22957-22970	57- 70	5	92
28	209	1648	22971-22984	71- 84	6	92
29	210	1649	22985-22998	85- 98	7	92
30	211	1650	22999-23012	99-112	8	92
31	212	1651	23013-23026	113-126	9	92

Landsat-2  
August 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	213	1652	23027-23040	127-140	10	93
2	214	1653	23041-23053	141-153	11	93
3	215	1654	23054-23067	154-167	12	93
4	216	1655	23068-23081	168-181	13	93
5	217	1656	23082-23095	182-195	14	93
6	218	1657	23096-23109	196-209	15	93
7	219	1658	23110-23123	210-223	16	93
8	220	1659	23124-23137	224-237	17	93
9	221	1660	23138-23151	238-251	18	93
10	222	1661	23152-23165	1- 14	1	94
11	223	1662	23166-23179	15- 28	2	94
12	224	1663	23180-23193	29- 42	3	94
13	225	1664	23194-23207	43- 56	4	94
14	226	1665	23208-23221	57- 70	5	94
15	227	1666	23222-23235	71- 84	6	94
16	228	1667	23236-23249	85- 98	7	94
17	229	1668	23250-23263	99-112	8	94
18	230	1669	23264-23277	113-126	9	94
19	231	1670	23278-23291	127-140	10	94
20	232	1671	23292-23304	141-153	11	94
21	233	1672	23305-23318	154-167	12	94
22	234	1673	23319-23332	168-181	13	94
23	235	1674	23333-23346	182-195	14	94
24	236	1675	23347-23360	196-209	15	94
25	237	1676	23361-23374	210-223	16	94
26	238	1677	23375-23388	224-237	17	94
27	239	1678	23389-23402	238-251	18	94
28	240	1679	23403-23416	1- 14	1	95
29	241	1680	23417-23430	15- 28	2	95
30	242	1681	23431-23444	29- 42	3	95
31	243	1682	23445-23458	43- 56	4	95

Landsat-2  
September 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	244	1683	23459-23472	57- 70	5	95
2	245	1684	23473-23486	71- 84	6	95
3	246	1685	23487-23500	85- 98	7	95
4	247	1686	23501-23514	99-112	8	95
5	248	1687	23515-23528	113-126	9	95
6	249	1688	23529-23542	127-140	10	95
7	250	1689	23543-23555	141-153	11	95
8	251	1690	23556-23569	154-167	12	95
9	252	1691	23570-23583	168-181	13	95
10	253	1692	23584-23597	182-195	14	95
11	254	1693	23598-23611	196-209	15	95
12	255	1694	23612-23625	210-223	16	95
13	256	1695	23626-23639	224-237	17	95
14	257	1696	23640-23653	238-251	18	95
15	258	1697	23654-23667	1- 14	1	96
16	259	1698	23668-23681	15- 28	2	96
17	260	1699	23682-23695	29- 42	3	96
18	261	1700	23696-23709	43- 56	4	96
19	262	1701	23710-23723	57- 70	5	96
20	263	1702	23724-23737	71- 84	6	96
21	264	1703	23738-23751	85- 98	7	96
22	265	1704	23752-23765	99-112	8	96
23	266	1705	23766-23779	113-126	9	96
24	267	1706	23780-23793	127-140	10	96
25	268	1707	23794-23806	141-153	11	96
26	269	1708	23807-23820	154-167	12	96
27	270	1709	23821-23834	168-181	13	96
28	271	1710	23835-23848	182-195	14	96
29	272	1711	23849-23862	196-209	15	96
30	273	1712	23863-23876	210-223	16	96

Landsat-2  
October 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	274	1713	23877-23890	224-237	17	96
2	275	1714	23891-23904	238-251	18	96
3	276	1715	23905-23918	1- 14	1	97
4	277	1716	23919-23932	15- 28	2	97
5	278	1717	23933-23946	29- 42	3	97
6	279	1718	23947-23960	43- 56	4	97
7	280	1719	23961-23974	57- 70	5	97
8	281	1720	23975-23988	71- 84	6	97
9	282	1721	23989-24002	85- 98	7	97
10	283	1722	24003-24016	99-112	8	97
11	284	1723	24017-24030	113-126	9	97
12	285	1724	24031-24043	127-139	10	97
13	286	1725	24044-24057	140-153	11	97
14	287	1726	24058-24071	154-167	12	97
15	288	1727	24072-24085	168-181	13	97
16	289	1728	24086-24099	182-195	14	97
17	290	1729	24100-24113	196-209	15	97
18	291	1730	24114-24127	210-223	16	97
19	292	1731	24128-24141	224-237	17	97
20	293	1732	24142-24155	238-251	18	97
21	294	1733	24156-24169	1- 14	1	98
22	295	1734	24170-24183	15- 28	2	98
23	296	1735	24184-24197	29- 42	3	98
24	297	1736	24198-24211	43- 56	4	98
25	298	1737	24212-24225	57- 70	5	98
26	299	1738	24226-24239	71- 84	6	98
27	300	1739	24240-24253	85- 98	7	98
28	301	1740	24254-24267	99-112	8	98
29	302	1741	24268-24281	113-126	9	98
30	303	1742	24282-24294	127-139	10	98
31	304	1743	24295-24308	140-153	11	98

Landsat-2  
November 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	305	1744	24309-24322	154-167	12	98
2	306	1745	24323-24336	168-181	13	98
3	307	1746	24337-24350	182-195	14	98
4	308	1747	24351-24364	196-209	15	98
5	309	1748	24365-24378	210-223	16	98
6	310	1749	24379-24392	224-237	17	98
7	311	1750	24393-24406	238-251	18	98
8	312	1751	24407-24420	1- 14	1	99
9	313	1752	24421-24434	15- 28	2	99
10	314	1753	24435-24448	29- 42	3	99
11	315	1754	24449-24462	43- 56	4	99
12	316	1755	24463-24476	57- 70	5	99
13	317	1756	24477-24490	71- 84	6	99
14	318	1757	24491-24504	85- 98	7	99
15	319	1758	24505-24518	99-112	8	99
16	320	1759	24519-24532	113-126	9	99
17	321	1760	24533-24545	127-139	10	99
18	322	1761	24546-24559	140-153	11	99
19	323	1762	24560-24573	154-167	12	99
20	324	1763	24574-24587	168-181	13	99
21	325	1764	24588-24601	182-195	14	99
22	326	1765	24602-24615	196-209	15	99
23	327	1766	24616-24629	210-223	16	99
24	328	1767	24630-24643	224-237	17	99
25	329	1768	24644-24657	238-251	18	99
26	330	1769	24658-24671	1- 14	1	100
27	331	1770	24672-24685	15- 28	2	100
28	332	1771	24686-24699	29- 42	3	100
29	333	1772	24700-24713	43- 56	4	100
30	334	1773	24714-24727	57- 70	5	100

Landsat-2  
December 1979

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	335	1774	24728-24741	71- 84	6	100
2	336	1775	24742-24755	85- 98	7	100
3	337	1776	24756-24769	99-112	8	100
4	338	1777	24770-24783	113-126	9	100
5	339	1778	24784-24796	127-139	10	100
6	340	1779	24797-24810	140-153	11	100
7	341	1780	24811-24824	154-167	12	100
8	342	1781	24825-24838	168-181	13	100
9	343	1782	24839-24852	182-195	14	100
10	344	1783	24853-24866	196-209	15	100
11	345	1784	24867-24880	210-223	16	100
12	346	1785	24881-24894	224-237	17	100
13	347	1786	24895-24908	238-251	18	100
14	348	1787	24909-24922	1- 14	1	101
15	349	1788	24923-24936	15- 28	2	101
16	350	1789	24937-24950	29- 42	3	101
17	351	1790	24951-24964	43- 56	4	101
18	352	1791	24965-24978	57- 70	5	101
19	353	1792	24979-24992	71- 84	6	101
20	354	1793	24993-25006	85- 98	7	101
21	355	1794	25007-25020	99-112	8	101
22	356	1795	25021-25034	113-126	9	101
23	357	1796	25035-25047	127-139	10	101
24	358	1797	25048-25061	140-153	11	101
25	359	1798	25062-25075	154-167	12	101
26	360	1799	25076-25089	168-181	13	101
27	361	1800	25090-25103	182-195	14	101
28	362	1801	25104-25117	196-209	15	101
29	363	1802	25118-25131	210-223	16	101
30	364	1803	25132-25145	224-237	17	101
31	365	1804	25146-25159	238-251	18	101

C-2

Landsat-2  
January 1980

Date	GMT Day	Flight Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	1	1805	25160-25173	1- 14	1	102
2	2	1806	25174-25187	15- 28	2	102
3	3	1807	25188-25201	29- 42	3	102
4	4	1808	25202-25215	43- 56	4	102
5	5	1809	25216-25229	57- 70	5	102
6	6	1810	25230-25243	71- 84	6	102
7	7	1811	25244-25257	85- 98	7	102
8	8	1812	25258-25271	99-112	8	102
9	9	1813	25272-25285	113-126	9	102
10	10	1814	25286-25298	127-139	10	102
11	11	1815	25299-25312	140-153	11	102
12	12	1816	25313-25326	154-167	12	102
13	13	1817	25327-25340	168-181	13	102
14	14	1818	25341-25354	182-195	14	102
15	15	1819	25355-25368	196-209	15	102
16	16	1820	25369-25382	210-223	16	102
17	17	1821	25383-25396	224-237	17	102
18	18	1822	25397-25410	238-251	18	102
19	19	1823	25411-25424	1- 14	1	103
20	20	1824	25425-25438	15- 28	2	103
21	21	1825	25439-25452	29- 42	3	103
22	22	1826	25453-25466	43- 56	4	103
23	23	1827	25467-25480	57- 70	5	103
24	24	1828	25481-25494	71- 84	6	103
25	25	1829	25495-25508	85- 98	7	103
26	26	1830	25509-25522	99-112	8	103
27	27	1831	25523-25536	113-126	9	103
28	28	1832	25537-25549	127-139	10	103
29	29	1833	25550-25563	100-153	11	103
30	30	1834	25564-25577	154-167	12	103
31	31	1835	25578-25591	168-181	13	103



APPENDIX C

LANDSAT-2 DOCUMENTS ISSUED THIS REPORT PERIOD

<u>No.</u>	<u>Document No.</u>	<u>Title and Date</u>
1	14NO-L-2-246	Landsat-2 Comstor Indeterminate Mode Anomaly, dated 9 February 1979

# TABLE OF CONTENTS

Section		Page
	INTRODUCTION. . . . .	vii
1	SUMMARY - LANDSAT-3 OPERATIONS. . . . .	1-1
2	ORBITAL PARAMETERS. . . . .	2-1
3	POWER SUBSYSTEM . . . . .	3-1
4	ATTITUDE CONTROL SUBSYSTEM . . . . .	4-1
5	COMMAND/CLOCK SUBSYSTEM . . . . .	5-1
6	TELEMETRY SUBSYSTEM . . . . .	6-1
7	ORBIT ADJUST SUBSYSTEM . . . . .	7-1
8	MAGNETIC MOMENT COMPENSATING ASSEMBLY. . . . .	8-1
9	UNIFIED S-BAND/ PREMODULATION PROCESSOR. . . . .	9-1
10	ELECTRICAL INTERFACE SUBSYSTEM . . . . .	10-1
11	THERMAL SUBSYSTEM . . . . .	11-1
12	NARROWBAND TAPE RECORDERS . . . . .	12-1
13	WIDEBAND TELEMETRY SUBSYSTEM . . . . .	13-1
14	ATTITUDE MEASUREMENT SENSOR . . . . .	14-1
15	WIDEBAND VIDEO TAPE RECORDERS . . . . .	15-1
16	RETURN BEAM VIDICON . . . . .	16-1
17	MULTISPECTRAL SCANNER SUBSYSTEM. . . . .	17-1
18	DATA COLLECTION SUBSYSTEM . . . . .	18-1
	APPENDIX A: LANDSAT-2 ANOMALIES AND OBSERVATIONS . . . . .	A-1
	APPENDIX B: LANDSAT-3 SPACECRAFT ORBIT REFERENCE TABLES. . . . .	B-1
	APPENDIX C: LANDSAT-3 DOCUMENTS ISSUED THIS REPORT PERIOD. . . . .	C-1

# LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
2-1	Landsat-3 Ground Track . . . . .	2-3
2-2	Local Mean Time at Descending Node, Landsat-3 . . . . .	2-5
2-3	Drift in Angular Phasing Between Landsat-2 and Landsat-3 . . . . .	2-7
3-1	Landsat-3 I <sub>A</sub> (Midday) Degradation vs Days . . . . .	3-2
3-2	Landsat-3 Midday Solar Array Current . . . . .	3-3
3-3	Landsat-3 Predicted Sun Angle . . . . .	3-4
4-1	Landsat-3 Gating Frequency vs Time . . . . .	4-3
4-2	Landsat-3 Cumulative Gating History . . . . .	4-5
5-1	Landsat-3 Clock Drift from GMT . . . . .	5-2
5-2	Landsat-3 Cumulative Clock Drift . . . . .	5-2
5-3	Landsat-3 Clock Drift Rate . . . . .	5-2
7-1	ACS 1 - Landsat-3 OA . . . . .	7-2
7-2	ACS 2 - Landsat-3 OA . . . . .	7-3
7-3	ACS 3 - Landsat-3 OA . . . . .	7-4
7-4	ACS 4 - Landsat-3 OA . . . . .	7-5
11-1	Landsat-3 Sensory Ring Average Bay Temperatures, Orbit 5595, 10 April 1979 . . . . .	11-2
15-1	Landsat-3 WBVTR Tape Footage Thru Orbit 5927 . . . . .	15-4
17-1A	MSS Scenes in N-S Passages This Quarter - Landsat 3 (Cycles 18-22). . . . .	17-5
17-1B	MSS Scenes in S-N Passages (Night) This Quarter - Landsat-3 (Cycles 18-22) . . . . .	17-7
17-2A	Map of MSS Scenes in N-S Passages (Daylight) Since Launch - Landsat-3 (Cycles 1-22). . . . .	17-9
17-2B	Map of MSS Scenes in S-N Passages (Night) Since Launch - Landsat-3 (Cycles 1-22) . . . . .	17-11
17-3	Landsat-3 Sensor 2 Response to Six Positions in the Cal Wedge . . . . .	17-13
17-4	Landsat-3 Sensor 6 Response to Six Positions in the Cal Wedge . . . . .	17-14
17-5	Landsat-3 Sensor 8 Response to Six Positions in the Cal Wedge . . . . .	17-15
17-6	Landsat-3 Sensor 12 Response to Six Positions in the Cal Wedge . . . . .	17-16
17-7	Landsat-3 Sensor 13 Response to Six Positions in the Cal Wedge . . . . .	17-17
17-8	Landsat-3 Sensor 17 Response to Six Positions in the Cal Wedge . . . . .	17-18
17-9	Landsat-3 Sensor 22 Response to Six Positions in the Cal Wedge . . . . .	17-19
17-10	Landsat-3 Sensor 24 Response to Six Positions in the Cal Wedge . . . . .	17-20
18-1	Landsat-3 Number of DCS Messages for Each 18-Day Cycle . . . . .	18-1

# LIST OF TABLES

<u>Number</u>		<u>Page</u>
1-1	In-Orbit Payload Systems Performance - Launch thru Orbit 5775 (4/25/79) Landsat-3 . . . . .	1-2
2-1	Landsat-3 Brouwer Mean Orbital Parameters . . . . .	2-9
3-1	Landsat-3 Major Power Subsystem Parameters . . . . .	3-5
3-2	Landsat-3 Power Subsystem Analog Telemetry . . . . .	3-7
4-1	Landsat-3 Pitch Position Bias. Pitch Pneumatic Gating Summary . . . . .	4-2
4-2	Landsat-3 ACS Voltages and Currents . . . . .	4-7
4-3	Landsat-3 ACS Attitude Errors and Driver Duty Cycles . . . . .	4-8
4-4	Landsat-3 ACS Subsystem Temperature and Pressure Averages. . . . .	4-8
5-1	Command Clock Telemetry Summary. . . . .	5-3
6-1	TMP Telemetry Values . . . . .	6-2
7-1	Landsat-3 Orbit Adjust Summary . . . . .	7-6
7-2	Landsat-3 OAS Telemetry Values . . . . .	7-7
8-1	MMCA Telemetry Values. . . . .	8-2
9-1	Landsat-3 USB/PMP Telemetry Values . . . . .	9-2
10-1	Landsat-3 APU Telemetry Functions . . . . .	10-2
11-1	Landsat-3 Thermal Subsystem Analog Telemetry. . . . .	11-3
11-2	Landsat-3 Compensation Load History . . . . .	11-5
12-1	NBR Operating Hours by Mode . . . . .	12-1
12-2	Narrow Band Tape Recorder Telemetry Values . . . . .	12-1
13-1	Typical Wideband Subsystem Telemetry. . . . .	13-1
14-1	AMS Telemetry Values . . . . .	14-1
15-1	Telemetry Values for WBVTR-1 and -2 . . . . .	15-1
15-2	Telemetry Values for WBVTR-1 . . . . .	15-2
15-3	Telemetry Values for WBVTR-2 . . . . .	15-3
16-1	RBV Telemetry Values . . . . .	16-1
16-2	Camera No. 1 Telemetry (Values in TMV) . . . . .	16-2
16-3	Camera No. 2 Telemetry (Values in TMV) . . . . .	16-2
17-1	MSS Analog Telemetry - Landsat 3 . . . . .	17-2
17-2	Gain for Sensors Measured Immediately after Cooldown and Normalized to Gain Step 6 . . . . .	17-3
18-1	DCS Telemetry Values . . . . .	18-2

## INTRODUCTION

This is the 6th report in a continuing series of documents issued at launch, and quarterly thereafter, to present flight performance analyses of the Landsat-3 spacecraft. The previously issued documents are:

<u>Document No.</u>	<u>Title</u>	<u>Date</u>
78SDS4203	Landsat-3 Launch and Flight Activation Evaluation Report 5 to 9 March 1978, through Orbit 50 and Orbit Adjust Operation.	17 March 1978
78SDS4216	Landsat-1, Landsat-2, and Landsat-3 Flight Evaluation Report, 23 January 1978 to 23 April 1978	3 May 1978
78SDS4232	Landsat-2 and Landsat-3 Flight Evaluation Reports, 23 April 1978 to 23 July 1978	1 August 1978
78SDS4250	Landsat-2 and Landsat-3 Flight Evaluation Report 23 July 1978 to 23 October 1978	1 November 1978
79SDS4201	Landsat-2 and Landsat-3 Flight Evaluation Report 23 October 1978 to 23 January 1979	1 February 1979

This report contains analysis of flight performance for Orbits 4400 to 5590 for Landsat-3.

## SECTION 1

### SUMMARY LANDSAT-3 OPERATIONS

The Landsat-3 spacecraft was launched from the Western Test Range on 5 March 1978 at 06:17:54:00, 551 GMT. The launch and orbital injection phase of the spacecraft were nominal and deployment of the spacecraft followed predictions.

All systems performed normally until Orbit 41, 8 March 1978, when cell 4 of the "B" COMSTOR would not load and verify properly. Subsequent orbits would not verify and dummy commands "000" were used in cell 4 until 18 March 1978, when cell 4 changed to all "ones." The "B" COMSTOR was then taken out of operational use until Orbit 1897 (19 June 1978) when it was activated for processing spacecraft commands after a test for its stability.

The ECAM halted on 4 May 1978 due to a fixed core checksum error. It again halted on 11 May 1978 when core location 0403 (octal) contained a discrepancy. Neither error affects spacecraft operation. The on-board checksum value for ECAM has been changed to accommodate the core errors and ECAM operation has been normal since then.

The RBV Camera 1 had intermittent white level saturation during an RBV image which was first detected in Orbit 55, 9 March 1978. It was more prevalent in the first 5% of occasional images. Operational use of the RBV was not interrupted.

The Band 5 sensors are continuously contaminated by gas molecules and output response declines with molecular build-up. The gas molecules are removed by periodic outgassing cycles. However, the Band 5 sensors have a long term sensor decline as measured by initial measurements after outgassing, so that the current response is only 2/3 the initial response at launch.

On 1 July 1978, sensor 25, showed no output when Band 5 was turned ON after the seventh outgas cycle. Only sensor 26 is active in Band 5.

Band 5 was turned off in Orbit 5410 on 28 March 1979 during the investigation of the MSS late line start anomaly and has remained off to the end of this report period.

In late August 1978, processed MSS data showed occasional late line starts. The anomaly increased in frequency in September 1978, but after a switch-to-scan monitor source B was not seen between October 1978, and January 1979. In January and February 1979, the anomaly began appearing again. In late March 1979, intermittent burst of late line starts became severe enough to disrupt processing. Special tests, made in March and April 1979, are being evaluated. Since early April the anomaly has been rare.

In early December 1978, data from Brazil and from processing of MSS data revealed extra scan monitor pulses occurring as early line starts or extra end of line codes (4 black, 4 white pixels) in the scene data. They occur only over magnetic anomalies, i.e., Brazil and Africa, at a low incidence rate. Landsat-1 and Landsat-2 had similar occurrences.

The spacecraft continues to perform its mission satisfactorily with MSS, RBV, DCS, and both Wideband Telemetry Systems in use. Table 1-1 shows cumulative in-orbit payload system performance.

## SECTION 1

### SUMMARY LANDSAT-3 OPERATIONS

The Landsat-3 spacecraft was launched from the Western Test Range on 5 March 1978 at 064:17:54:00, 551 GMT. The launch and orbital injection phase of the spacecraft were nominal and deployment of the spacecraft followed predictions.

All systems performed normally until Orbit 41, 8 March 1978, when cell 4 of the "B" COMSTOR would not load and verify properly. Subsequent orbits would not verify and dummy commands "000" were used in cell 4 until 18 March 1978, when cell 4 changed to all "ones." The "B" COMSTOR was then taken out of operational use until Orbit 1897 (19 June 1978) when it was activated for processing spacecraft commands after a test for its stability.

The ECAM halted on 4 May 1978 due to a fixed core checksum error. It again halted on 31 May 1978 when core location 0403 (octal) contained a discrepancy. Neither error affects spacecraft operation. The on-board checksum value for ECAM has been changed to accommodate the core errors and ECAM operation has been normal since then.

The RBV Camera 1 had intermittent white level saturation during an RBV image which was first detected in Orbit 55, 9 March 1978. It was more prevalent in the first 5% of occasional images. Operational use of the RBV was not interrupted.

The Band 5 sensors are continuously contaminated by gas molecules and output response declines with molecular build-up. The gas molecules are removed by periodic outgassing cycles. However, the Band 5 sensors have a long term sensor decline as measured by initial measurements after outgassing, so that the current response is only 2/3 the initial response at launch.

On 17 July 1978, sensor 25, showed no output when Band 5 was turned ON after the seventh outgas cycle. Only sensor 26 is active in Band 5.

Band 5 was turned off in Orbit 5410 on 28 March 1979 during the investigation of the MSS late line start anomaly and has remained off to the end of this report period.

In late August 1978, processed MSS data showed occasional late line starts. The anomaly increased in frequency in September 1978, but after a switch-to-scan monitor source B was not seen between October 1978, and January 1979. In January and February 1979, the anomaly began appearing again. In late March 1979, intermittent burst of late line starts became severe enough to disrupt processing. Special tests, made in March and April 1979, are being evaluated. Since early April the anomaly has been rare.

In early December 1978, data from Brazil and from processing of MSS data revealed extra scan monitor pulses occurring as early line starts or extra end of line codes (4 black, 4 white pixels) in the scene data. They occur only over magnetic anomalies, i.e., Brazil and Africa, at a low incidence rate. Landsat-1 and Landsat-2 had similar occurrences.

The spacecraft continues to perform its mission satisfactorily with MSS, RBV, DCS, and both Wideband Telemetry Systems in use. Table 1-1 shows cumulative in-orbit payload system performance.

Table 1-1. In-Orbit Payload Systems Performance-Launch thru Orbit 5775  
(4/25/79), Landsat-3

RBV	Total Scenes Imaged	29,285
	Total Area Imaged (million sq. n mi.)	255.4
	ON TIME (hr.)	278
	ON/OFF Cycles	3,047
	% Real Time Images	90
	% Recorded Images	10
MSS	Total Scenes imaged	91,820
	Total Area Imaged (million sq. n mi.)	813
	ON TIME (hr.)	1,100
	ON/OFF Cycles	7,342
	% Real Time Images	80
	% Recorded Images	20
DCS	Messages at OCC	401,605
	Users	35
	ON TIME (hr.)	9,930
WPA-1	ON TIME (hr.)	324
	ON/OFF Cycles	2,245
WPA-2	ON TIME (hr.)	981
	ON/OFF Cycles	5,103
WBVTR-1	% Record Mode	38
	% Playback Mode	41
	% Rewind Mode	20
	% Standby Mode	1
	Time Head-Tape Contact (hr.)	129.2
	Cycles Head-Tape Contact	1,769
	ON TIME (hr.)	164
WBVTR-2	% Record Mode	38
	% Playback Mode	41
	% Rewind Mode	20
	% Standby Mode	1
	MFSE Count in P/B	< 5
	Time Head-Tape Contact (hr.)	282
	Cycles Head-Tape Contact	4,967
	ON TIME (hr.)	356



## SECTION 2

### ORBITAL PARAMETERS

At the close of this report period, Landsat-3's ground track error was 1.91 nm west (longitude) at the equator.

Spacecraft drag (which is directly proportional to solar-activity) increased during this quarter. In the absence of the "controlled pitch gating via pitch position bias program," drag effected Landsat 3's ground track and a minus X axis, orbit maintenance orbit adjust was performed during Orbit 5301 (20 Mar 1979) to correct this condition.

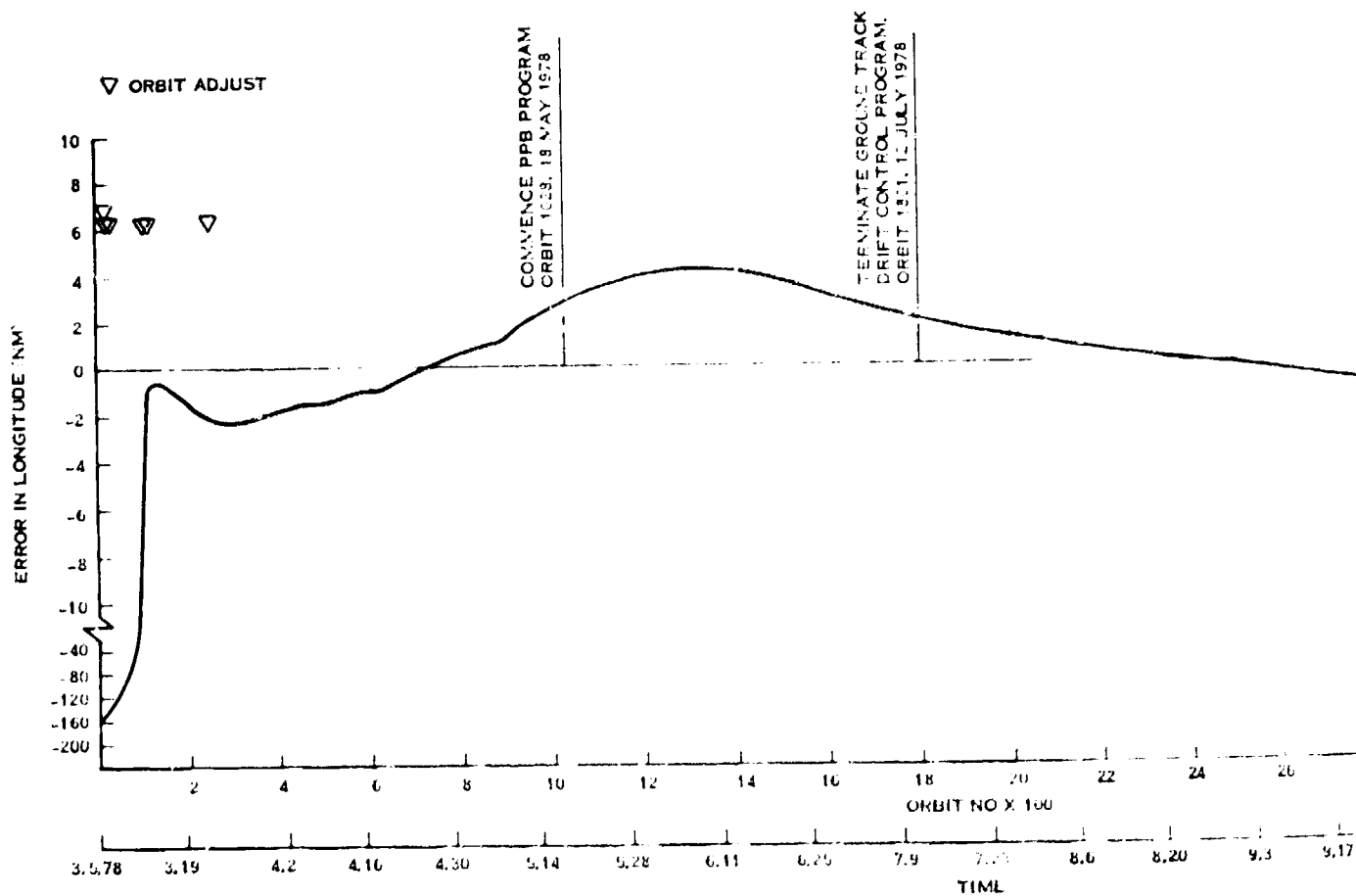
Error in longitude since launch as a function of time, orbit maintenance burns, and the Pitch Position Bias program are shown in Figure 2-1.

Figure 2-2 shows the mean local time for the spacecraft's descending equatorial crossing. The mean local time crossings for Landsats 2 and 3 respectively are 09:21:51 MLT and 09:31:48 MLT.

Phasing relationships between Landsat-2 and 3 are shown in Figure 2-3. Landsat-3 leads Landsat-2 at their descending equatorial crossings by 41.5 GMT minutes.

The Brouwer Mean Orbital parameters for Landsat-3 are given in Table 2-1.

Appendix B provides the spacecraft orbit reference tables for October 1978 to January 1980.



~~EDUCATION FRAME~~ 2

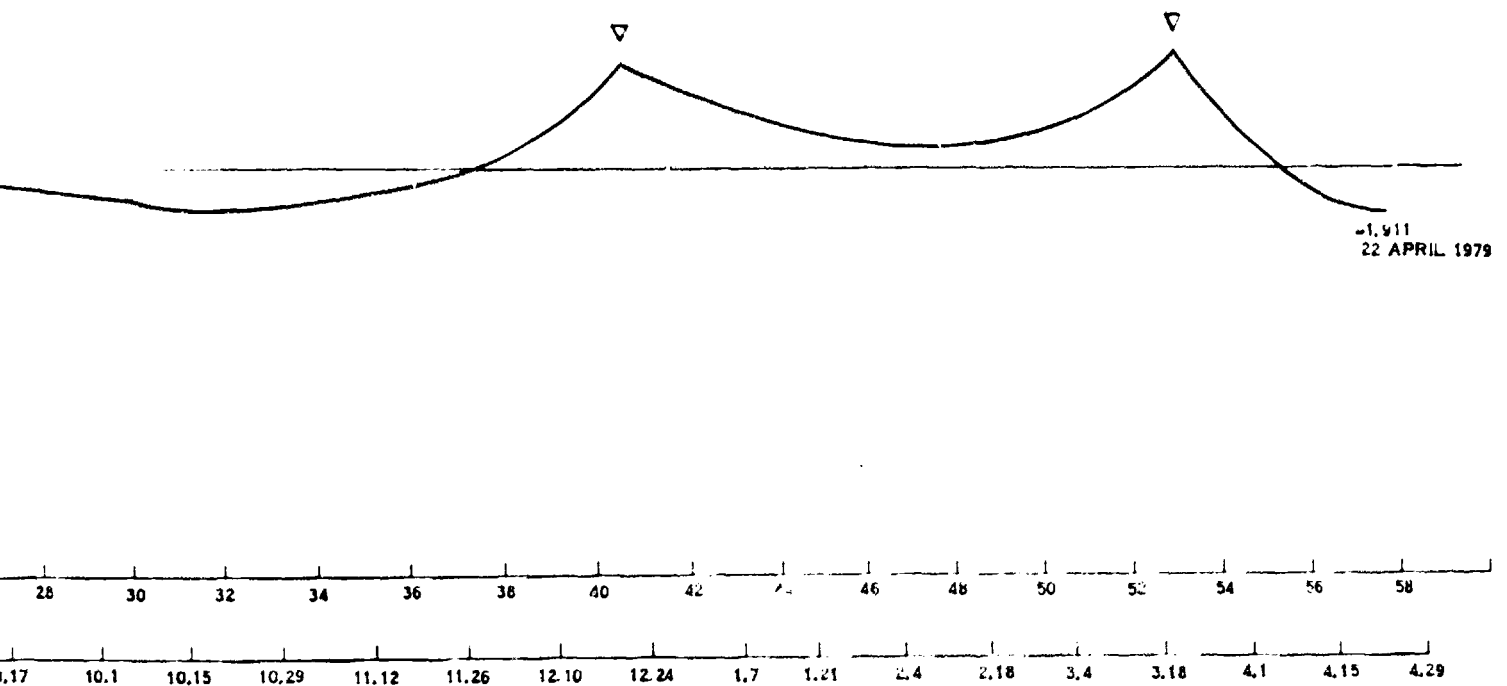
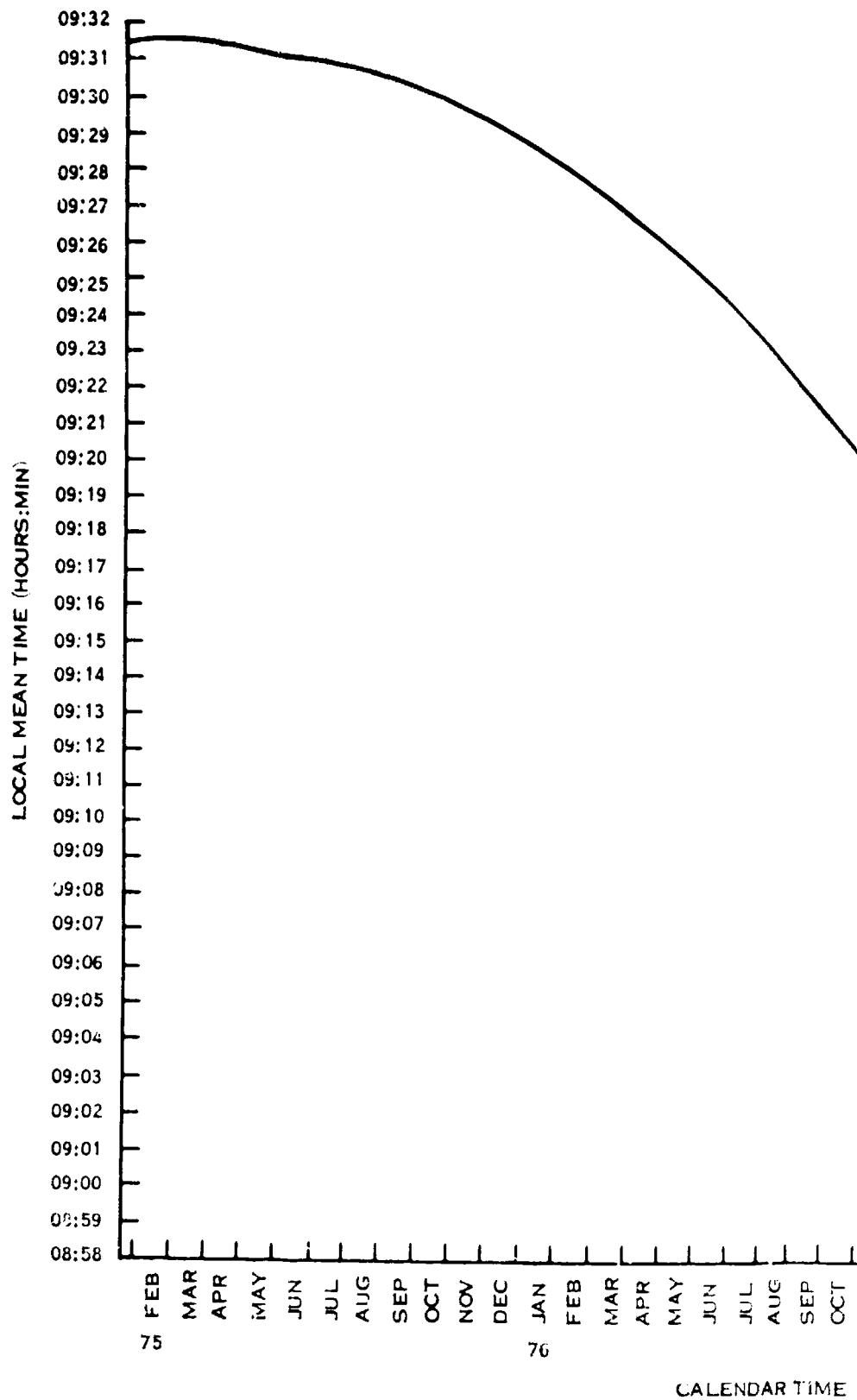


Figure 2-1. Landsat-3 Ground Track



FOODST PRAGE

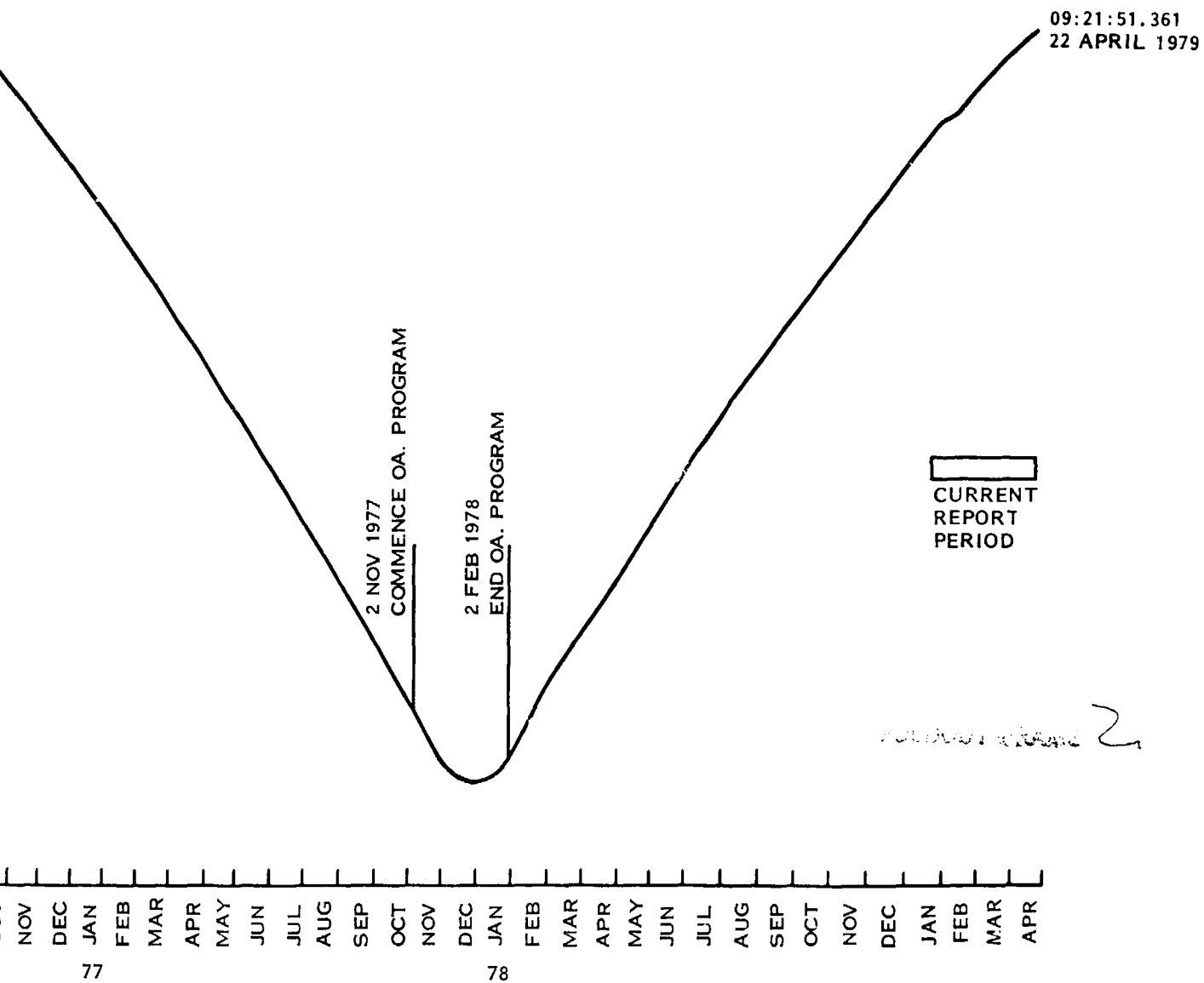
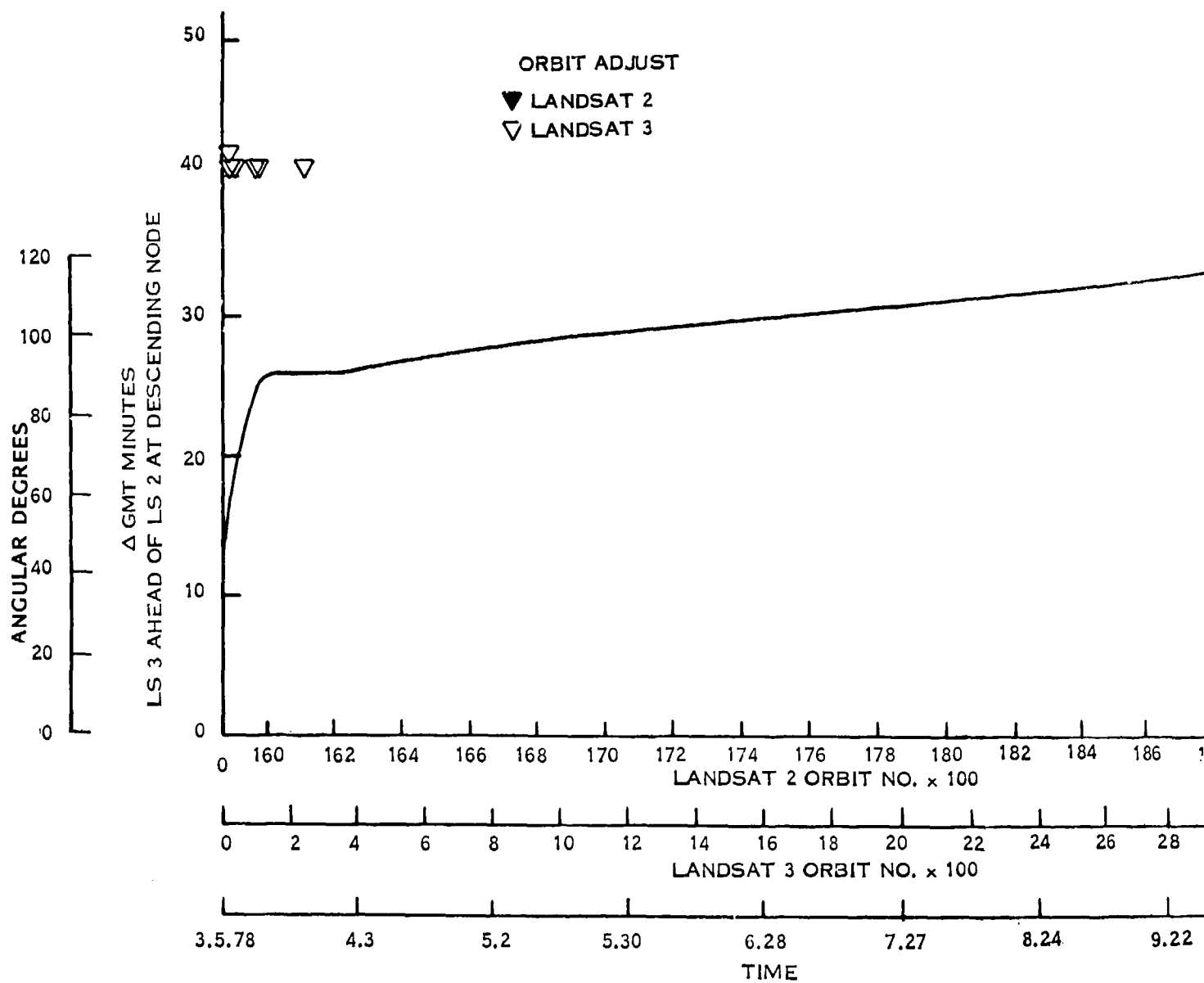


Figure 2-2. Local Mean Time at Descending Node, Landsat-3



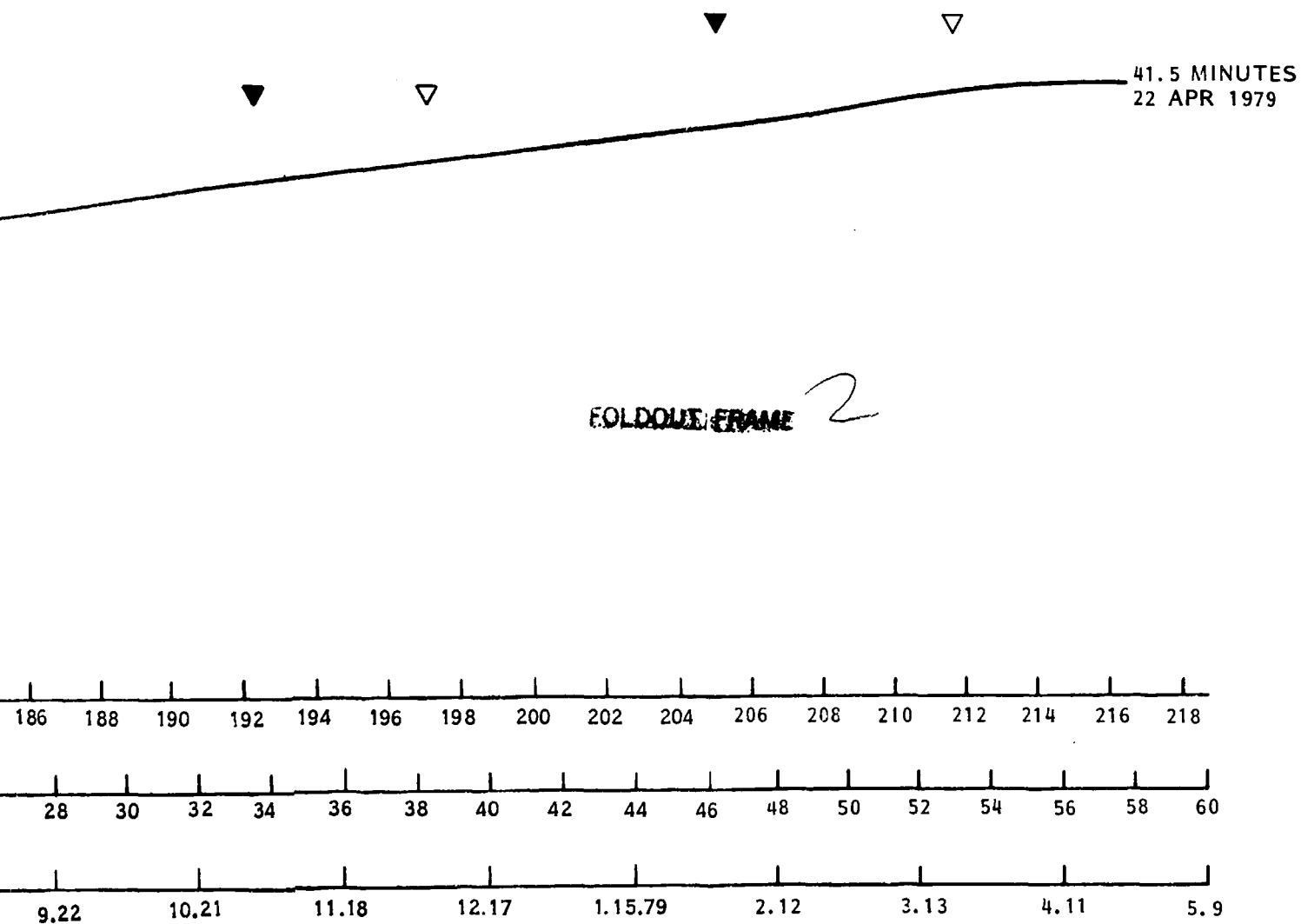


Figure 2-3. Drift in Angular Phasing Between Landsat-2 and Landsat-3

Table 2-1. Landsat-3 Brouwer Mean Orbital Parameters

Element Date	Apogee (KM)	Perigee (KM)	Inclination (Deg.)	Semi-Major Axis (KM)	Eccentricity	Anomolistic Period (Min)	Nodal Period (Min)	Argument of Perigee (Deg)	Right Ascension (Deg)	Mean Anomaly (Deg)
Nominal	915.99	899.67	99.1487	7285.9970	0.001120	103.15516	103.269	302.5609	125.6747	98.1039
5 Mar 1978 <sup>1</sup>	913.96	897.30	99.1348	7283.7988	0.001143	103.10848	103.2	306.5555	125.6244	94.3356
14 Mar 1978 <sup>2</sup>	916.67	898.83	99.1249	7285.9149	0.001225	103.15341	103.26	258.6162	133.8339	281.4021
20 Apr 1978	917.37	897.84	99.1213	7285.7685	0.001340	103.15031	103.266	154.0432	171.2200	25.7708
23 July 1978	916.56	898.66	99.1116	7285.7740	0.001228	103.15042	103.266	261.2939	263.2883	213.2205
23 Oct 1978	917.14	898.21	99.0994	7285.8163	0.001299	103.15184	103.266	14.6621	354.1226	56.7372
16 Jan 1979	917.92	897.60	99.0866	7285.9014	0.001395	103.15364	103.269*	136.6106	77.9191	35.4071
24 Apr 1979	916.79	898.47	99.0693	7285.7693	0.001257	103.15084	103.267	227.3165	174.3771	145.8921

1. Post Launch.

2. After the sequence of phasing maneuvers completed in Orbit 115.

3. \* Corrected since previous report.



### SECTION 3

#### POWER SUBSYSTEM (PWR)

The Power Subsystem on Landsat-3 has performed satisfactorily throughout this report period.

The solar arrays continued to provide excess energy above spacecraft and payload requirements and are expected to support the Landsat-3 mission through 1980. The percentage degradation of the arrays is plotted as a function of days in orbit in Figure 3-1, along with the pre-launch predicted array degradation. The array degradation at the end of 12 months in orbit was 8.4%. The projected values of midday array current are plotted in Figure 3-2. Here the array current is adjusted for sun intensity and array degradation, as well as sun angle. Along with the same curve is plotted the actual telemetry values observed until the end of the current report period.

The battery packs on-line ranged from 8.9 to 11.9% depth of discharge (DOD) during this report period. Battery voltages have been maintained within suitable limits with Landsat-3 power management procedure, excess array energy being dissipated through auxiliary loads. Temperatures ranged from 15.20°C to 23.62°C during this report period.

The power subsystem electronics have performed well during this report period with all regulated voltages stable. Table 3-1 shows major subsystem parameters and Table 3-2 shows power subsystem telemetry for selected orbits. Some parameters in Table 3-1 may be slightly different from those in Table 3-2 because Table 3-1 uses a power management time span (night followed by day), whereas the time span used in Table 3-2 is the playback period from the NBR.

Figure 3-3 shows the predicted variation in sun angle to orbit plane and solar panels for Landsat-3.

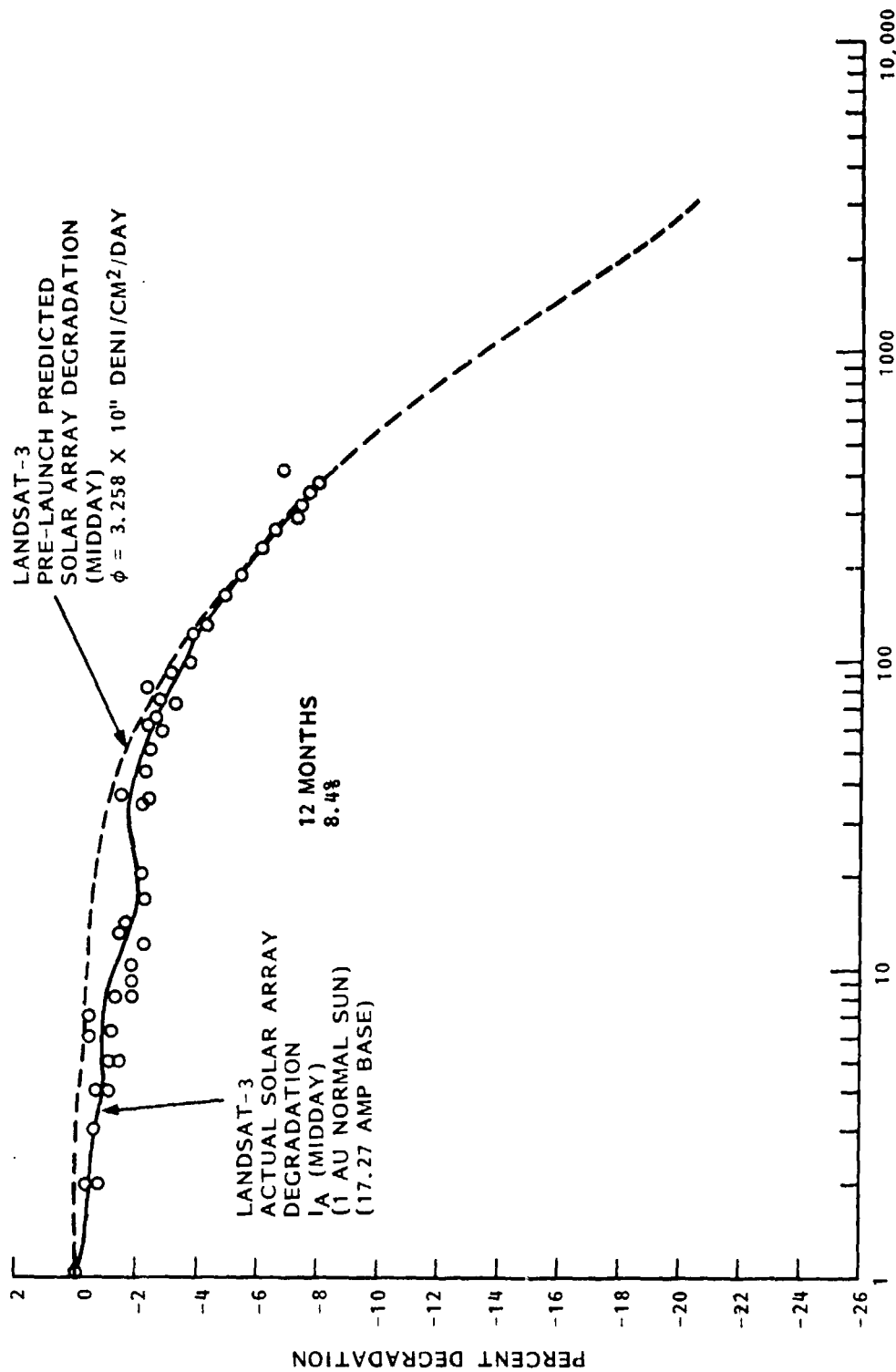


Figure 3-1. Landsat-3  $I_A$  (Midday) Degradation vs Days

LANDSAT-3 HIGH NOON SOLAR ARRAY CURRENT
PREDICTED CURRENT ADJUSTED FOR SUN INTENSITY, SUN ANGLE, AND RADIATION DEGRADATION.

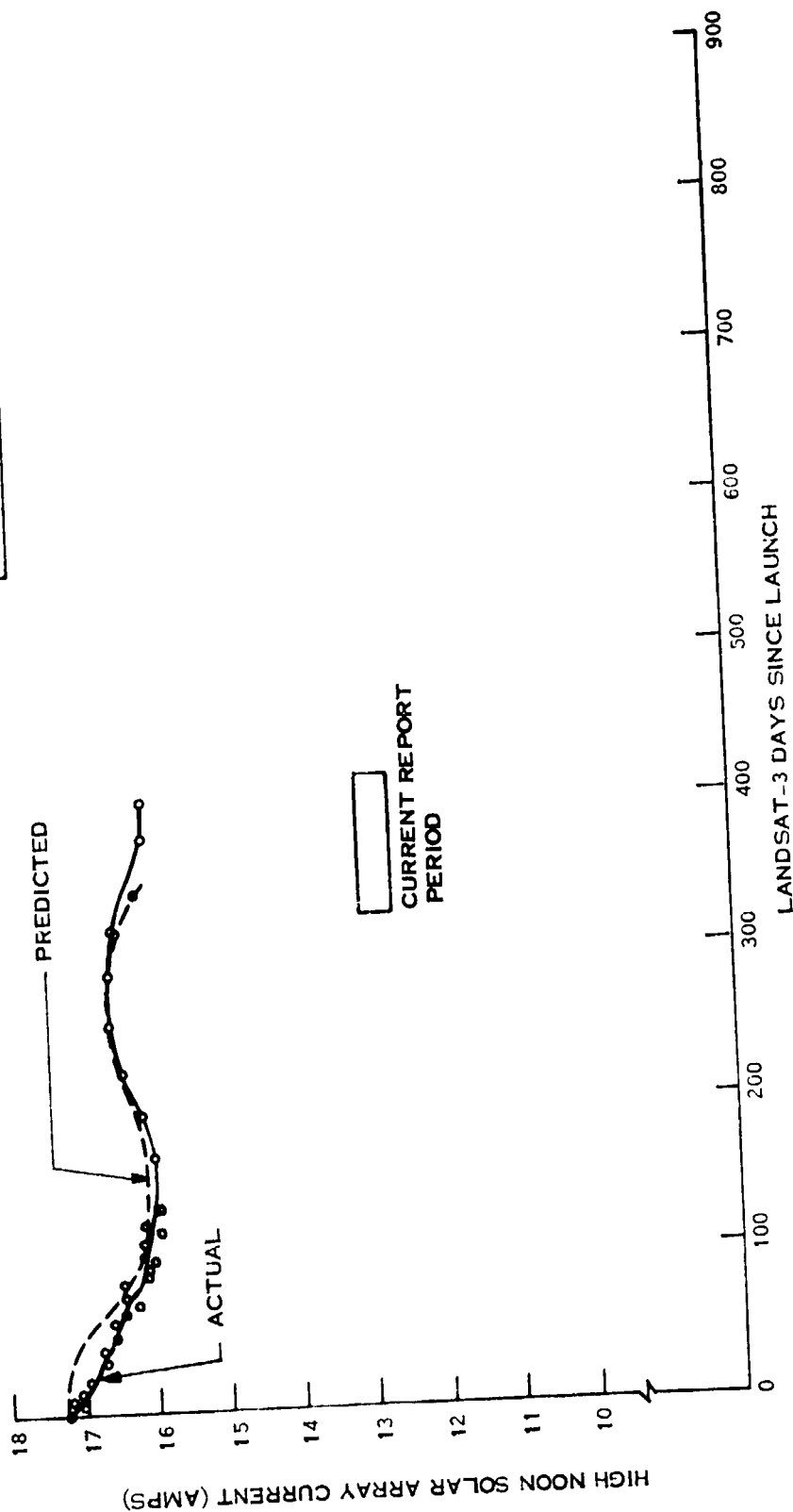
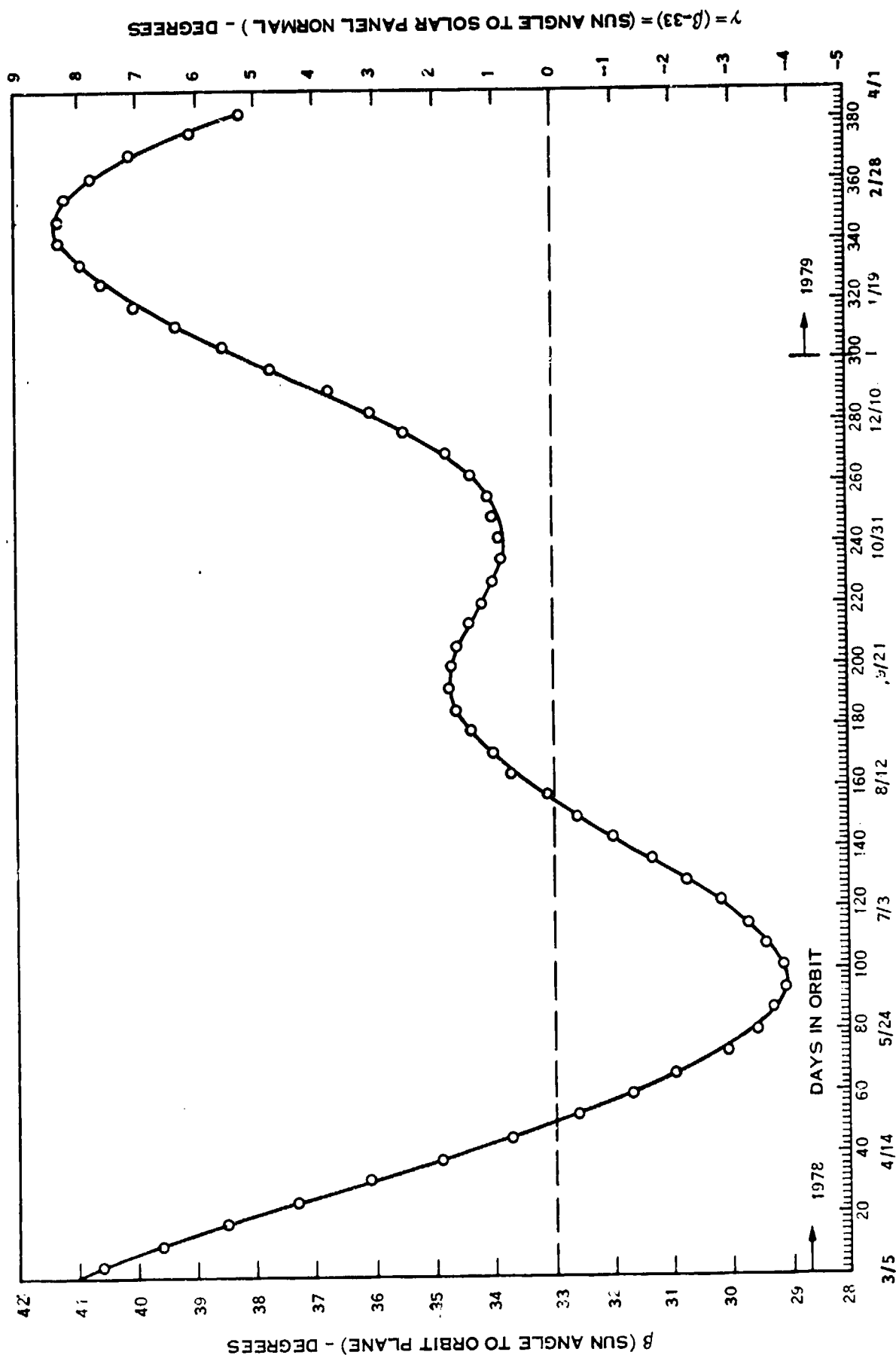


Figure 3-2. Landsat-3 Midday Solar Array Current



CALENDAR DAYS (1 DIV = 2 DAYS)  
Figure 3-3. Landsat-3 Predicted Sun Angle

Table 3-1. Landsat-3 Major Power Subsystem Parameters

Description	Orbit								
	65	1464	2711	3552	4001	4412	4761	5262	5612
Batt 1 Max	32.41	32.92	32.92	32.75	33.09	33.00	32.83	32.83	32.66
2 Chge	32.41	32.83	32.92	32.66	33.00	33.00	32.83	32.83	32.66
3 Volt*	32.50	33.00	33.00	32.84	33.09	33.09	32.92	32.92	32.75
4	32.32	32.83	32.83	32.66	33.00	32.92	32.75	32.75	32.58
5	32.41	32.92	32.92	32.75	33.00	33.00	32.83	32.83	32.66
6	32.41	32.92	33.00	32.75	33.09	33.09	32.92	32.92	32.75
7	32.34	33.04	33.04	32.87	33.21	33.13	32.96	32.96	32.79
8	32.32	32.84	32.92	32.66	33.00	33.00	32.75	32.75	32.58
Average	32.41	32.91	32.94	32.74	33.05	33.03	32.85	32.85	32.68
Batt 1 End-of-Night	29.60	29.51	28.58	29.60	29.94	29.26	29.26	29.51	27.39
2 Volt*	29.51	29.51	28.49	29.51	29.35	29.26	29.17	29.51	27.39
3	29.75	29.67	28.75	29.75	30.09	29.42	29.42	29.67	27.67
4	29.51	29.51	28.49	29.51	29.85	29.17	29.17	29.51	27.47
5	29.60	29.60	28.66	29.60	29.94	29.34	29.34	29.60	27.55
6	29.60	29.60	28.58	29.60	29.94	29.26	29.26	29.51	27.55
7	29.76	29.68	28.75	29.76	30.10	29.42	29.42	29.68	27.82
8	29.51	29.43	28.94	29.51	29.85	29.17	29.17	29.43	27.64
Average	29.60	29.56	28.60	29.60	29.94	29.29	29.28	29.55	27.56
Batt 1 Chge	12.51	12.79	12.70	12.80	12.85	12.81	12.69	12.71	12.38
2 Share	11.78	12.43	11.99	12.20	12.33	11.99	11.80	11.88	11.81
3 (%)	11.64	11.90	12.15	11.97	11.82	11.77	11.67	11.75	12.20
4	12.31	12.16	12.50	12.27	12.06	12.25	12.25	12.31	13.01
5	14.25	13.17	13.65	13.56	13.71	13.95	14.35	13.89	13.57
6	12.54	12.77	12.30	12.32	12.38	12.13	12.08	12.60	12.21
7	12.54	12.40	12.63	12.56	12.48	12.69	12.80	12.69	12.60
8	12.11	12.39	12.17	12.33	12.37	12.41	12.38	12.16	12.22
Batt 1 Load	12.85	12.94	12.66	12.78	12.86	12.85	12.86	12.97	12.43
2 Share	11.94	12.28	11.73	11.88	12.04	11.99	11.77	11.73	11.37
3 (%)	11.99	12.53	12.77	12.59	12.64	12.75	12.60	12.88	12.68
4	12.06	12.33	11.97	11.91	11.66	11.79	11.79	11.51	12.53
5	13.88	12.96	12.84	12.73	12.82	13.06	12.77	12.62	12.84
6	11.97	12.34	13.40	13.49	13.86	13.15	13.75	14.36	13.52
7	12.80	12.63	12.37	12.23	11.99	12.12	12.13	11.75	12.23
8	12.51	11.99	12.26	12.39	12.12	12.35	12.32	12.17	12.40
Batt 1 Temp	15.70	16.67	16.86	18.71	19.31	19.20	18.55	17.98	16.63
2 in.	14.31	16.20	15.82	18.18	18.68	17.74	16.89	16.53	15.29
3 (°C)	15.26	20.33	16.68	17.90	18.55	17.82	17.20	17.34	15.91
4	19.46	20.33	20.79	21.44	22.12	21.96	21.19	21.41	20.73
5	19.57	17.74	18.45	20.81	22.12	23.37	23.62	22.93	19.56
6	15.49	17.16	16.91	17.96	18.49	17.90	17.57	17.38	16.16
7	20.71	19.80	20.99	22.04	23.04	23.74	23.54	22.67	21.43
8	17.55	17.88	18.44	20.33	21.48	21.83	21.55	20.59	17.94
Average	17.26	17.86	18.24	19.67	20.47	20.46	20.02	19.49	17.94
S/C Reg Bus Pwr. (W)	148.90	151.90	150.43	162.68	184.00	160.96	158.42	132.06	134.26
Comp Load Pwr. (W) (P/O S/C Reg Bus Pwr)	0.00	5.89	5.39	5.39	5.39	5.39	5.39	5.39	0.0
P/L Reg Bus Pwr. (W)	14.30	10.60	30.14	25.97	27.69	27.20	9.06	11.52	13.72
C/D Ratio	1.26	1.44	1.06	1.11	1.13	1.06	1.08	1.14	1.08
Total Charge (A-M)	253.00	274.31	310.63	306.65	275.53	327.19	342.79	221.05	277.80
Total Discharge (A-M)	260.70	190.94	293.80	277.29	243.99	309.53	223.92	190.53	250.83
Solar Array (A-M)	1252.00	1132.00	1152.00	1180.10	1180.50	1180.90	1169.60	1162.20	1142.50
S.A. Peak I (Amp)	16.08	16.93	16.85	17.29	17.29	17.19	16.93	16.95	16.85
Midday Array I (Amp)	17.38	16.05	16.14	16.49	16.49	16.41	16.05	15.97	15.97
Sun Angle (Deg) (°)	7.40	3.77	1.64	1.11	3.43	6.91	8.32	5.69	4.01
Max R Pad Temp (°C)	58.40	59.60	59.60	+ 64.40	+ 65.60	+ 64.40	62.00	60.80	59.60
Min R Pad Temp (°C)	38.67	42.67	39.34	- 40.00	- 40.00	38.00	37.40	37.40	38.67
Max L Pad Temp (°C)	53.84	59.07	54.61	+ 58.46	+ 58.46	+ 59.23	57.69	56.15	55.38
Min L Pad Temp (°C)	40.71	43.43	43.57	- 41.29	- 43.37	- 41.43	39.71	40.71	- 42.14

\* All Voltages are Negative

Table 3-2. Landsat-3 Power Subsystem Analog Telemetry  
(Average Value for Data Received in NBTR Playback)

Function	Description	Unit*	Orbit									
			56	1464	2711	3552	4001	4429	4761	5261	5595	
6001	Batt 1 Disc 1	Amp	0.74	0.73	1.00	0.81	0.79	0.82	0.93	0.77	0.61	
6002	2		0.69	0.70	0.94	0.77	0.75	0.77	0.88	0.73	0.62	
6003	3		0.60	0.71	0.99	0.79	0.76	0.78	0.86	0.71	0.59	
6004	4		0.73	0.70	0.96	0.76	0.72	0.76	0.88	0.71	0.61	
6005	5		0.80	0.73	1.06	0.83	0.81	0.87	0.97	0.81	0.62	
6006	6	Amp	0.64	0.69	0.98	0.80	0.78	0.81	0.89	0.73	0.61	
6007	7		0.74	0.72	1.01	0.80	0.75	0.81	0.91	0.74	0.59	
6008	8		0.72	0.63	0.98	0.79	0.75	0.79	0.89	0.73	0.63	
6011	Batt 1 Chg I		0.62	0.63	0.59	0.68	0.62	0.46	0.44	0.34	0.44	
6012	2		0.59	0.63	0.55	0.64	0.59	0.43	0.42	0.32	0.43	
6013	3		0.62	0.59	0.57	0.64	0.57	0.43	0.41	0.31	0.42	
6014	4		0.63	0.58	0.58	0.65	0.58	0.44	0.43	0.33	0.43	
6015	5		0.72	0.61	0.63	0.72	0.66	0.51	0.51	0.37	0.47	
6016	6		0.62	0.58	0.57	0.65	0.60	0.45	0.42	0.34	0.44	
6017	7		0.66	0.59	0.59	0.67	0.60	0.45	0.44	0.34	0.42	
6018	8	VDC	0.62	0.64	0.57	0.65	0.59	0.44	0.43	0.32	0.42	
6021	Batt 1 Volt		31.06	31.50	31.25	31.09	31.59	31.30	31.47	31.53	30.91	
6022	2		31.04	31.47	31.23	31.06	31.56	31.26	31.43	31.49	30.88	
6023	3		31.18	31.60	31.26	31.20	31.69	31.40	31.56	31.62	31.02	
6024	4		31.00	31.43	31.18	31.02	31.52	31.22	31.38	31.45	30.84	
6025	5		31.09	31.52	31.27	31.11	31.61	31.32	31.48	31.55	30.93	
6026	6		31.10	31.54	31.29	31.13	31.63	31.33	31.50	31.56	30.94	
6027	7		31.24	31.66	31.41	31.27	31.75	31.45	31.62	31.68	31.07	
6028	8		31.00	31.43	31.19	31.03	31.53	31.23	31.40	31.46	30.84	
6021	Batt 1 Temp	DGC	15.79	16.71	16.92	18.60	19.22	18.72	18.53	18.20	16.72	
6032	2		14.55	16.18	15.95	18.11	18.53	17.59	16.87	16.83	15.98	
6033	3		15.33	17.07	16.72	17.81	18.46	17.65	17.18	17.59	15.84	
6034	4		19.47	20.36	20.78	21.35	22.07	21.57	21.50	21.54	20.03	
6035	5		19.58	17.81	19.45	20.74	22.06	23.04	23.64	22.15	19.03	
6036	6		15.56	17.17	16.93	17.91	18.40	17.74	17.35	17.61	16.26	

6037	7			20.71	19.83	21.01	21.97	22.99	23.45	23.58	22.79	20.39
6038	8			17.63	17.87	18.50	20.25	21.38	21.44	21.51	20.85	18.37
6040	Rt. Pad Temp	DGC		28.58	24.33	26.76	29.56	29.98	30.17	29.30	29.19	27.40
6041	Rt. Pad VM	VDC		34.03	34.75	34.43	34.08	34.67	34.33	34.67	34.70	33.97
6042	Rt. Pad VN	VDC		33.83	34.80	34.47	34.12	34.66	34.18	34.34	34.51	33.96
6044	Lt. Pad Temp	DGC		23.63	18.08	21.63	23.94	24.58	25.74	25.56	25.05	22.94
6045	Lt. Pad VF	VDC		34.05	34.76	34.44	34.09	34.67	34.38	34.68	34.66	33.93
6046	Lt. Pad VG	VDC		33.65	34.36	34.04	33.69	34.27	33.96	34.28	34.27	33.54
6050	S/C UR Bus V	VDC		31.26	31.76	31.50	31.27	31.79	31.52	31.71	31.74	31.07
6051	S/C RG Bus V	VDC		24.58	24.60	24.00	24.60	24.61	24.61	24.60	24.61	24.60
6052	Aux Reg AV	VDC		23.52	23.52	23.52	23.52	23.52	23.52	23.52	23.52	23.52
6053	Aux Reg BV	VDC		23.52	23.52	23.52	23.52	23.52	23.52	23.52	23.52	23.52
6054	Solar I	Amp		16.73	15.89	15.85	16.27	16.18	15.95	15.66	15.70	15.82
6055	S/C RG Bus I	Amp		T	T	T	T	T	T	T	T	T
6056	S/C RG Bus I	Amp		6.08	6.20	6.24	6.61	6.65	6.18	5.70	5.36	5.78
6058	PC Mod T1	DGC		20.30	21.67	20.95	22.88	23.25	21.79	20.85	21.09	20.17
6059	PC Mod T2	DGC		18.44	19.99	19.49	20.99	21.47	20.45	19.82	20.12	18.70
6070	P/L RG Bus V	VDC		24.64	24.66	24.66	24.65	24.66	24.65	24.66	24.66	24.65
6071	P/L UR Bus V	VDC		31.27	31.76	31.51	31.26	31.79	31.54	31.71	31.76	31.08
6072	P/L RG Bus I	Amp		T	T	T	T	T	T	T	T	T
6073	P Aux AV	VDC		23.63	23.65	23.70	23.69	23.69	23.66	23.64	23.64	23.65
6074	P Aux BV	VDC		23.68	23.68	23.72	23.70	23.70	23.69	23.69	23.70	23.68
6075	PR Mod T1	DGC		17.36	18.61	18.45	19.80	20.05	19.27	18.48	18.65	18.11
6076	PR Mod T2	DGC		16.77	18.21	17.95	19.26	19.61	18.92	18.20	18.36	17.75
6079	Fuse Blow V	VDC		24.66	24.68	24.69	24.68	24.69	24.68	24.69	24.68	24.67
6080	Shunt 1 I	Amp		0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6081	2			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6082	3			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6083	4			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6084	5			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6085	6			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6086	7			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6087	8			0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0
6100	P/L RG Bus I	Amp		0.58	0.43	1.23	1.05	0.97	0.62	0.37	0.46	0.38
Total No.	Major Frames	Frm		372	785	388	778	785	392	396	382	385

\* All Voltages are Negative  
T - Telemetry OFF

## SECTION 4

### ATTITUDE CONTROL SYSTEM (ACS)

Since launch, Landsat-3's Attitude Control System has consistently maintained correct spacecraft attitude.

Pitch Position Bias is implemented during spacecraft night via arm/disarm commands in COMSTOR. The object of this sequence is ACS freon conservation. The operation minimizes Pitch gating by maintaining Pitch flywheel speed below the gating threshold.

Roll Wheel momentum is normally unloaded during spacecraft night via 2 to 3 pneumatic momentary enables scheduled in COMSTOR. If Roll Wheel speed approaches the gating level during satellite day, real time momentary enables are commanded - provided payloads are OFF.

Solar activity was unusually high during this report period and frequent PPB adjustments were required to sustain low Pitch flywheel speeds. Similarly, more real time momentary enables were commanded during satellite days to unload the Roll Wheels.

Both Landsat ACS systems were affected by the phenomenon, however, the effects on Landsat-3 were more pronounced.

Table 4-1 lists the PPB sequences implemented during this quarter.

Figures 4-1 and 4-2 summarize Landsat-3's pneumatic gating pattern since launch.

Flywheel duty cycles are low (3 to 8 percent) and dual scanner operation is normal.

Both SADS continue to track the sun; however, the LSAD's motor winding voltage and motor winding temperature have been gradually increasing (see Function 1240, Table 4-2 and Function 1223, Table 4-4). Alarm levels have not been reached and no indications of motor stoppage have been observed. This condition will be monitored closely in the future.

An orbit adjust (see Section 7) was conducted during Orbit 5301 (20 March 1979) with the ACS in the Orbit Adjust mode and with pneumatics enabled; spacecraft attitude was successfully maintained during the procedure. During this maneuver, RMP1 was exercised in the back up mode to the controlling RMP2.

Systems' temperatures, pressures, voltages and currents have all been normal as shown in the telemetry summary, Tables 4-2, 4-3 and 4-4.



**Table 4-1. Landsat-3 Pitch Position Bias, Pitch Pneumatic  
Gating Summary**

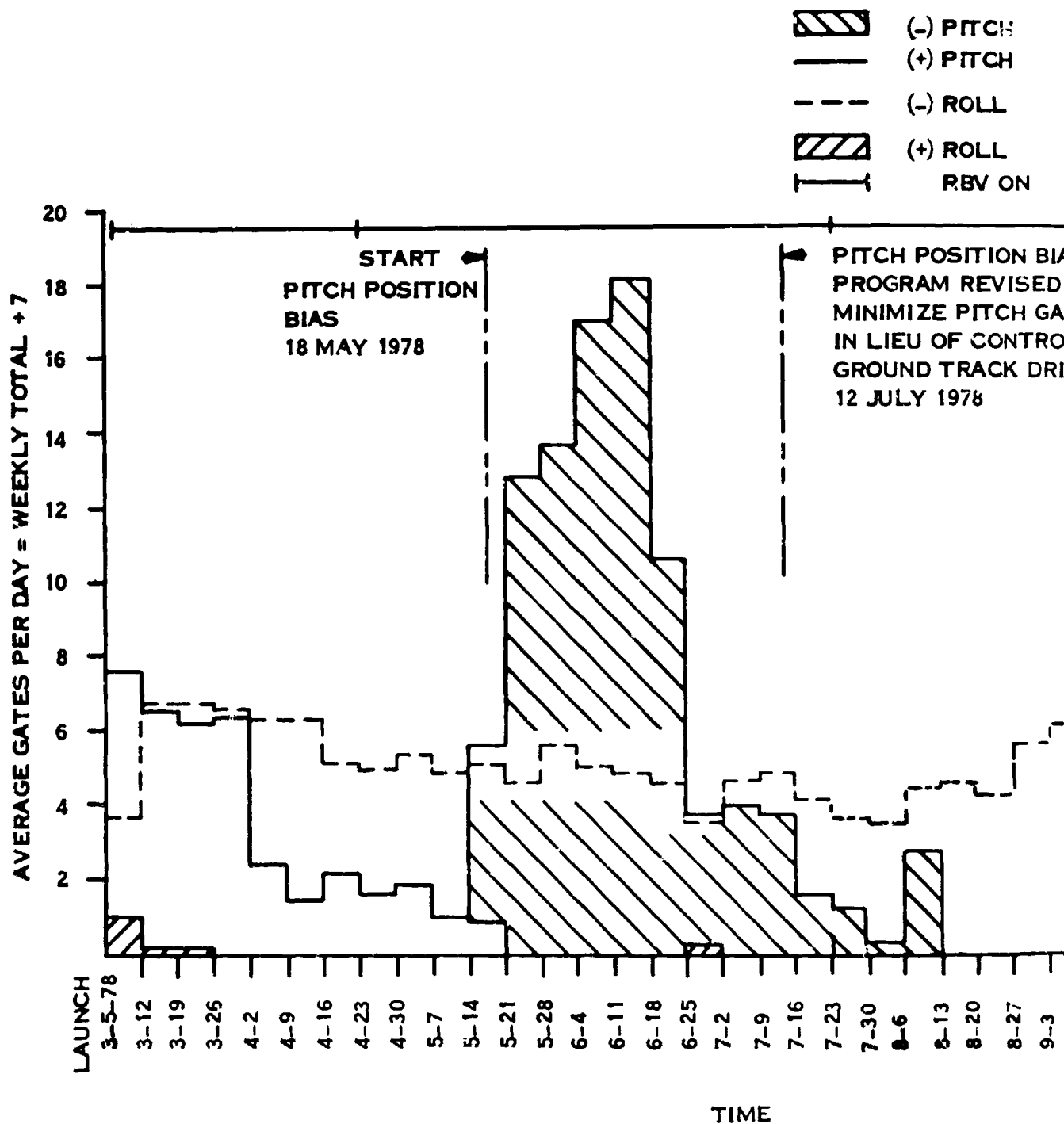
Period		Repetitive PPB Implementation Sequence			Minutes Positioned About Satellite Ascending Node, AN		Resulting Average Number of
From Orbit	To Orbit	N <sub>0</sub>	N <sub>0</sub> +1	N <sub>0</sub> +2	From	To	Pitch Gates
4523 24 Jan 79	4713 6 Feb 79	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	A <sub>N</sub> -6	A <sub>N</sub> +9	0.15 (-P)
4714 6 Feb 79	4811 13 Feb 79	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	A <sub>N</sub> -4	A <sub>N</sub> +8	0.66 (-P)
4812 13 Feb 79	4949 23 Feb 79	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	A <sub>N</sub> -4	A <sub>N</sub> +5	0.82 (-P)
4950 23 Feb 79	5132 8 Mar 79	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	+2.9 <sup>0</sup>	A <sub>N</sub> -1	A <sub>N</sub> +5	0.58 (-P)
5133 8 Mar 79	5161 10 Mar 79	+2.9 <sup>0</sup>	0.0 <sup>0</sup>	+2.9 <sup>0</sup>	A <sub>N</sub> -3	A <sub>N</sub> +5	2.40 (-P)
5162 10 Mar 79	5201 13 Mar 79	+2.9 <sup>0</sup>	0.0 <sup>0</sup>	0.0 <sup>0</sup>	A <sub>N</sub> -3	A <sub>N</sub> +5	1.04 (-P)
5202 13 Mar 79	5255 17 Mar 79	PPB Disarmed					1.29 (-P)
5256 17 Mar 79	5283 19 Mar 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	A <sub>N</sub> -14	A <sub>N</sub> -4	0.5 (-P)
5284 19 Mar 79	5313 21 Mar 79	-2.0 <sup>0</sup>	0.0 <sup>0</sup>	-2.0 <sup>0</sup>	A <sub>N</sub> -14	A <sub>N</sub> -4	0.46 (+P)
5314 21 Mar 79	5358 24 Mar 79	-2.0 <sup>0</sup>	0.0 <sup>0</sup>	-2.0 <sup>0</sup>	A <sub>N</sub> -12	A <sub>N</sub> -4	0.97 (+P)
5459 24 Mar 79	5445 30 Mar 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0	A <sub>N</sub> -12	A <sub>N</sub> -4	0.47 (-P)
5446 30 Mar 79	5484 2 Apr 79	-2.0 <sup>0</sup>	-2.0	-2.0 <sup>0</sup>	A <sub>N</sub> -13	A <sub>N</sub> -4	2.20 (-P)
5485 2 Apr 79	5511 4 Apr 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	A <sub>N</sub> -15	A <sub>N</sub> -4	2.14 (-P)
5512 4 Apr 79	5552 7 Apr 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	*T <sub>0</sub> -12	*T <sub>0</sub> +3	0.69 (+P)
5553 7 Apr 79	5608 11 Apr 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	T <sub>0</sub> -12	T <sub>0</sub> +1	4.73 (+P)
5609 11 Apr 79	5647 14 Apr 79	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	-2.0 <sup>0</sup>	T <sub>0</sub> -10	T <sub>0</sub>	10.64 (+P)
5648 14 Apr 79	5706 18 Apr 79	-2.0 <sup>0</sup>	0.0 <sup>0</sup>	-2.0 <sup>0</sup>	T <sub>0</sub> -10	T <sub>0</sub>	6.73 (+P)
5707 18 Apr 79	5718 19 Apr 79	-2.0 <sup>0</sup>	0.0 <sup>0</sup>	-2.0 <sup>0</sup>	T <sub>0</sub> -7.0	T <sub>0</sub>	5.1 (+P)
5719 19 Apr 79	5747 21 Apr 79	PPB Disarmed					1.9 (+P)
5748 21 Apr 79	5775 23 Apr 79	+2.0 <sup>0</sup>	0.0 <sup>0</sup>	+2.0 <sup>0</sup>	T <sub>0</sub> -10	T <sub>0</sub>	1.03 (+P)

N<sub>0</sub> - Equals Satellite Night

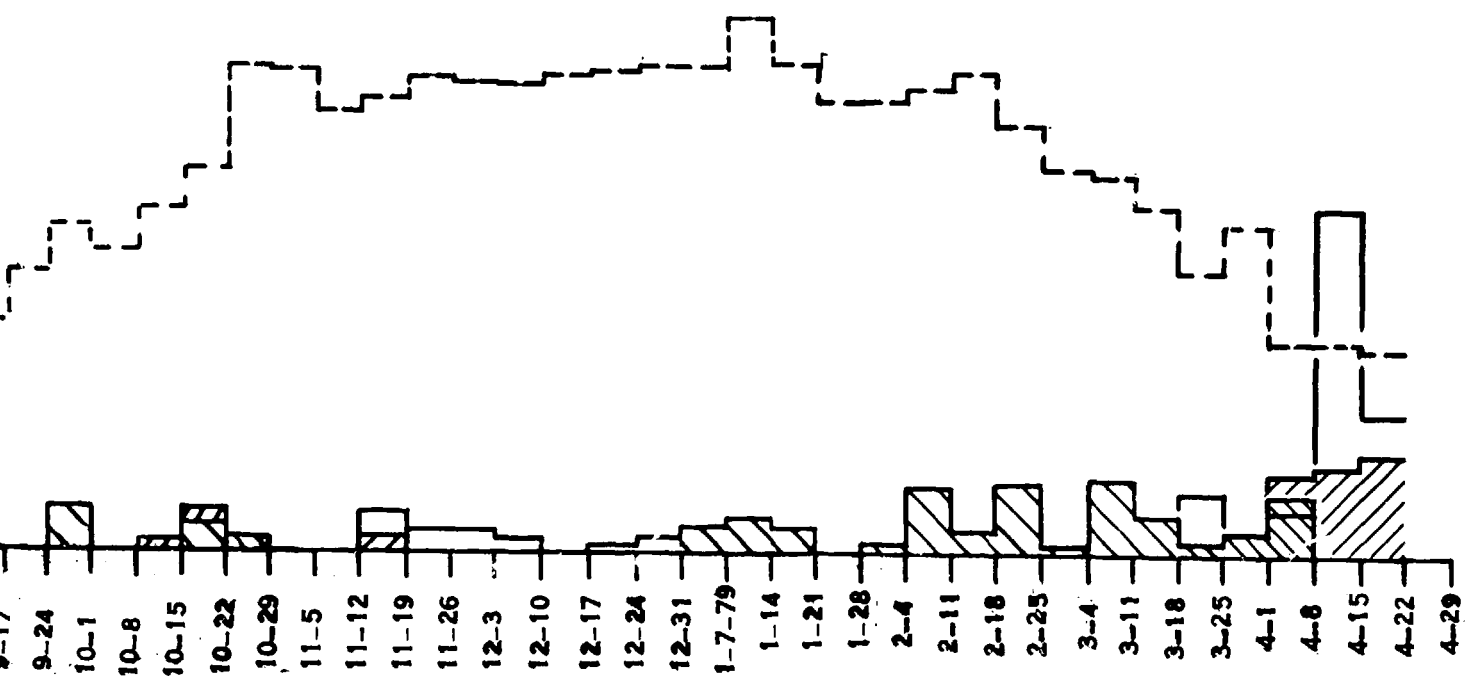
A<sub>N</sub> - Equals Ascending Node

T<sub>0</sub> - Equals Satellite Midnight

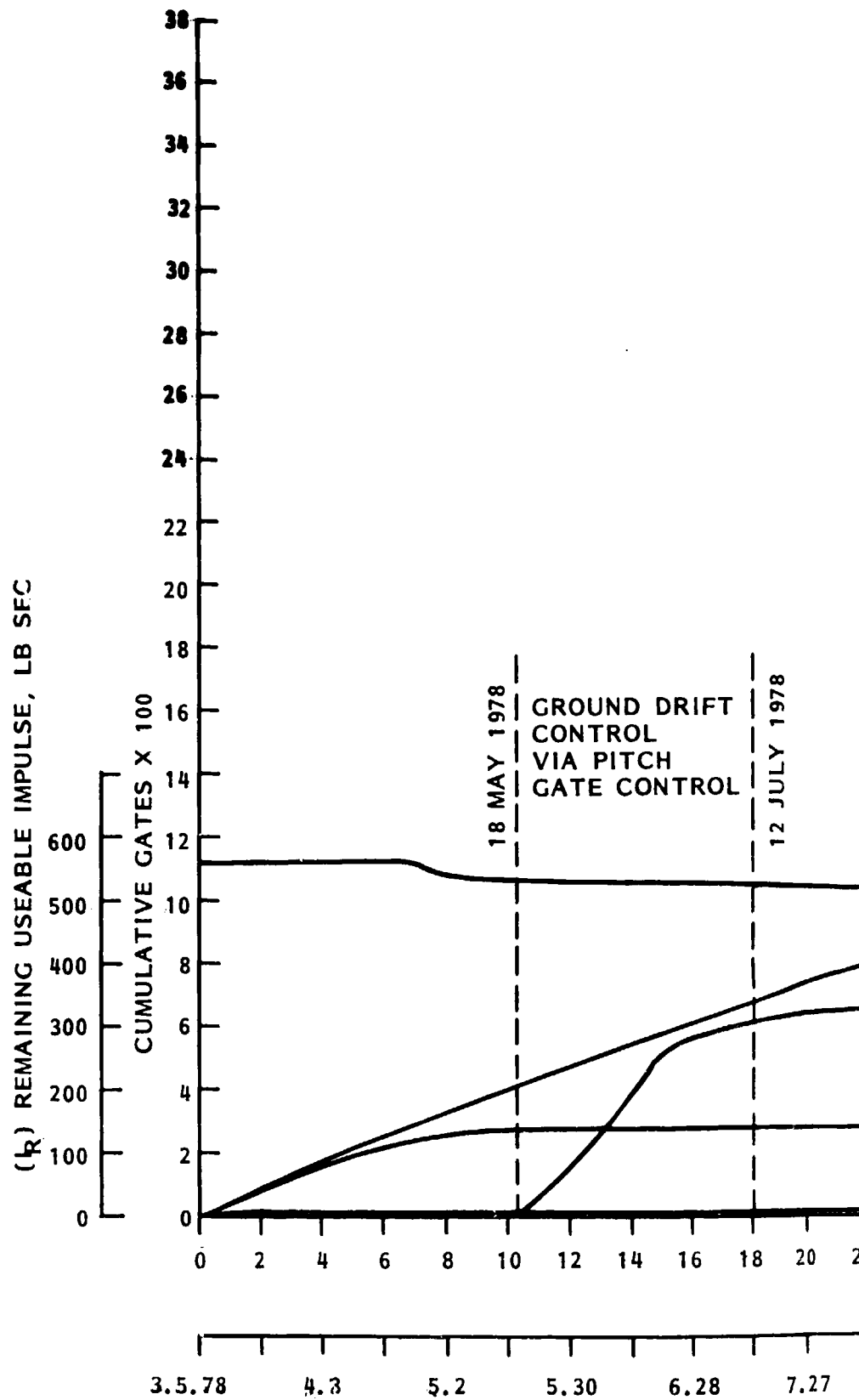
\* - Orbit Reference Point for PPB Position Changed from Ascending Node (A<sub>N</sub>) to Spacecraft Midnight (T<sub>0</sub>)



G  
NG



2 FOLDOUT FRAME Figure 4-1. Landsat-3 Gating Frequency vs Time



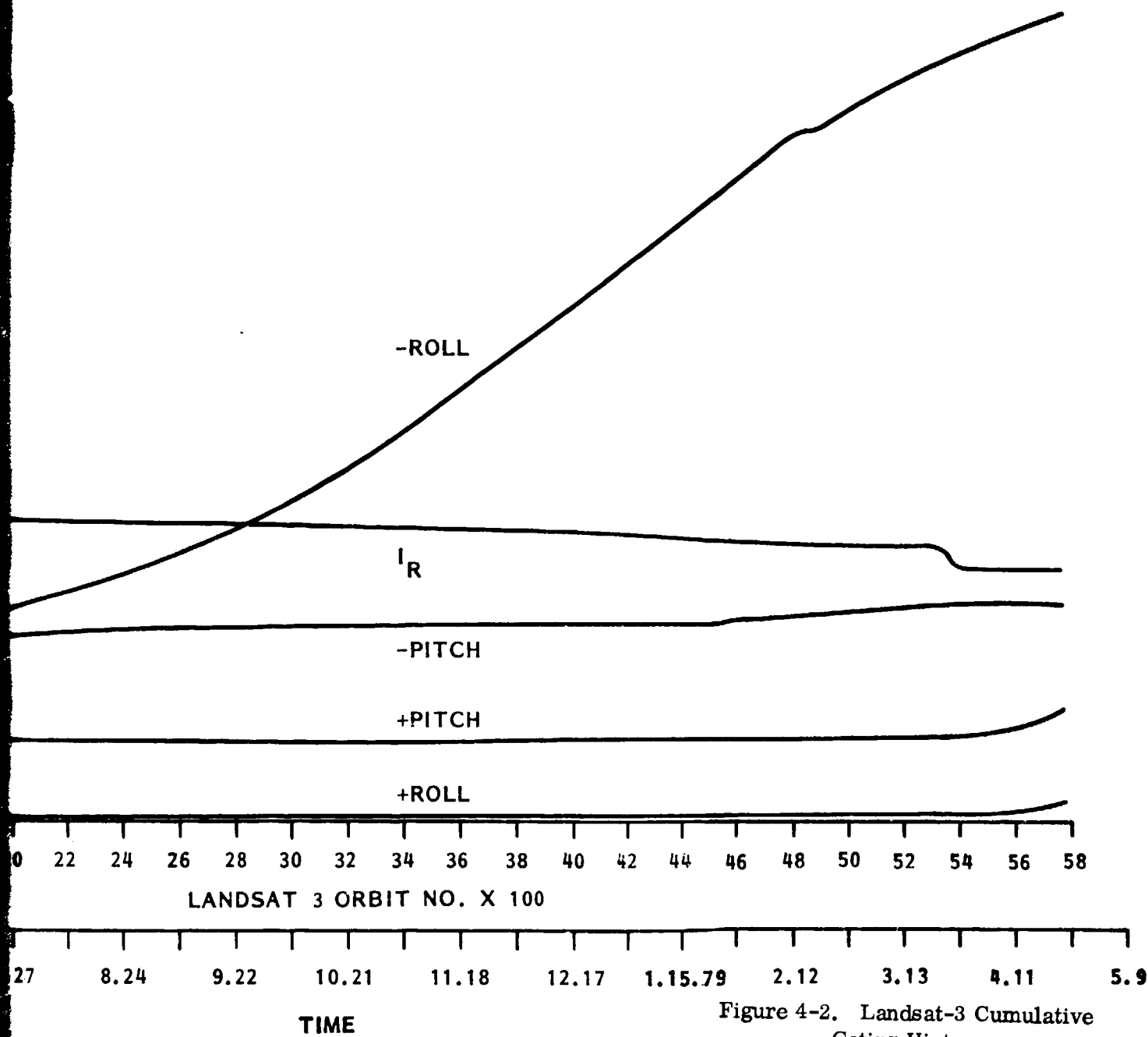


Figure 4-2. Landsat-3 Cumulative Gating History

Table 4-2. Landsat-3 ACS Voltages and Currents

Func	Name	Units	Orbits								
			50	1431	2700	3550	4001	4430	4761	5152	5595
1081	RMP 1 MTR Volts	VDC	F	F	F	F	F	F	F	F	F
1082	RMP 1 MTR Current	Amps	F	F	F	F	F	F	F	F	F
1080	RMP 1 Supply Volts	VDC	F	F	F	F	F	F	F	F	F
1091	RMP 2 MTR Volts	VDC	30.50	30.57	30.56	30.51	30.51	30.55	30.54	30.52	
1092	RMP 2 MTR Current	Amps	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
1090	RMP 2 Supply Volts	VDC	23.66	23.65	23.63	23.60	23.60	23.61	23.61	23.60	23.60
1220	SAD RT MTR WNDNG Volts	VDC	4.64	4.05	4.10	4.08	4.09	4.12	4.15	4.13	4.13
1240	SAT LT MTR WNDNG Volts	VDC	6.30	6.50	7.09	6.79	7.20	7.18	7.26	7.94	7.94
1227	SAT RT -15 VDC Conv.	VDC	15.48	15.48	15.48	15.48	15.48	15.48	15.48	15.48	15.48
1247	SAT LT -15 VDC Conv.	VDC	14.93	14.94	14.94	14.94	14.94	14.94	14.94	14.94	14.94
1056	CLB ± 6 VDC	TMV	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35	2.35
1055	CLB ± 10 VDC	TMV	2.88	2.88	2.87	2.88	2.88	2.88	2.88	2.87	2.87
1057	CLB Power Supply Volts	TMV	2.94	2.90	2.90	2.90	2.90	2.89	2.89	2.89	2.89

Table 4-3. Landsat-3 ACS Attitude Errors and Driver Duty Cycles

Func	Name	Units	Orbit								
			051	1431	2700	3550	4001	4430	4761	5152	5595
1041	Pitch Fine Error	DGC	- 0.13	- 1.27*	0.40	- 0.41	- 0.64	- 0.35	- 0.51*	- 0.18	0.22
1043	Pitch Flywheel Speed	RPM	-199.25	311.67	151.87	-135.11	- 8.81	143.78	119.65	131.48	- 57.62
1038	Pitch Mtr Drvr CCW	PCT	5.04	2.02	4.83	7.64	6.20	4.39	3.48	2.89	5.72
1039	Pitch Mir Drvr CW	PCT	2.92	5.41	6.85	5.57	6.19	6.17	5.40	4.77	4.73
1030	Roll Fine Error	DEG	- 0.13	- 0.19	- 0.18	- 0.18	- 0.14	- 0.17	- 0.19	- 0.17	- 0.18
1027	Roll Rear Flywheel SPD	RPM	765.38	801.37	804.05	801.01	782.98	791.16	796.71	770.35	793.88
1026	Roll Fwd Flywheel SPD	RPM	761.61	746.75	744.37	734.33	748.07	747.60	730.09	730.17	737.13
1022	Roll Rear Mtr Drvr CCW	PCT	1.05	0.04	0.59	0.57	0.74	0.83	0.48	0.57	0.68
1025	Roll Rear Mtr Drvr CW	PCT	6.94	6.00	7.12	6.63	6.97	7.00	6.50	6.56	6.07
1023	Roll Fwd Mtr Drvr CCW	PCT	1.03	0.01	0.33	0.43	0.78	0.68	0.57	0.72	0.49
1024	Roll Fwd Mtr Drvr CW	PCT	7.49	5.30	6.83	6.58	7.72	7.07	7.25	7.32	7.20
1035	Yaw Tach	RPM	24.29	2.80	5.44	10.92	- 15.53	- 97.06	2.04	13.27	- 23.84
1033	Yaw Mtr Drvr CW	PCT	2.90	1.52	2.43	2.14	2.18	2.12	1.80	1.95	2.12
1034	Yaw Mtr Drvr CCW	PCT	2.72	1.42	2.00	1.77	2.00	2.33	1.61	1.76	2.03
1221	SAD Right Tach	D/M	3.22	4.06	4.00	3.99	3.98	4.03	3.99	3.97	3.99
1241	SAD Left Tach	D/M	3.75	3.76	3.76	3.74	3.75	3.77	3.75	3.73	3.74

\* Pitch Position Bias Implemented in this Orbit

Table 4-4. Landsat-3 ACS Subsystem Temperature and Pressure Averages

Func	Name	Units	Orbit								
			50	1431	2700	3550	4001	4430	4761	5152	5595
1084	RMP 1 Gyro Temperature	DGC	18.78	22.30	23.20	25.50	25.47	24.79	24.14	23.94	25.50
1094	RMP 2 Gyro Temperature	DGC	77.52	77.99	78.00	78.00	78.00	78.00	78.00	78.00	78.01
1222	SAD RT MTR HSNG Temp	DGC	21.32	26.71	27.31	29.57	29.33	28.28	27.48	27.49	29.42
1242	SAD LT MTR HSNG Temp	DGC	26.72	30.10	31.52	33.54	33.82	33.42	33.08	32.78	33.80
1223	SAD RT MTR WNDNG Temp	DGC	19.94	25.37	25.68	27.96	27.54	26.31	25.30	25.43	27.72
1243	SAD LT MTR WNDNG Temp	DGC	27.03	29.47	30.97	32.80	33.29	32.95	32.48	32.29	33.62
1228	SAD RT HSG Pressure	PSI	6.93	7.00	7.00	7.00	7.01	6.93	6.87	6.87	6.87
1248	SAD LT HSG Pressure	PSI	7.31	7.31	7.25	7.26	7.26	7.19	7.19	5.69	5.58
1007	FWD Scanner MTR Temp	DGC	21.59	24.35	26.30	27.70	29.97	28.95	27.91	27.36	29.51
1016	Rear Scanner MTR Temp	DGC	22.64	24.86	26.17	28.84	29.06	28.23	27.46	27.22	28.87
1003	FWD Scanner Pressure	PSI	7.27	6.19	5.98	5.94	5.84	5.60	5.46	5.46	5.37
1012	Rear Scanner Pressure	PSI	6.93	7.14	7.04	6.96	6.88	6.88	6.88	6.69	6.71
1212	Gas Tank Pressure	PSI	1999.29	1963.84	1937.44	1929.73	1912.31	1852.03	1812.44	1787.44	1787.44
1210	Gas Tank Temperature	DGC	19.70	23.31	24.54	26.93	27.14	26.41	25.73	25.51	26.86
1213	Manifold Pressure	PSI	59.21	59.98	59.45	59.25	59.50	59.49	59.68	59.82	59.73
1211	Manifold Temperature	DGC	19.80	23.42	24.68	27.07	27.31	26.55	25.21	25.68	27.03
1059	CLG Power Sup Card Temp	DGC	32.36	34.73	36.07	38.15	38.20	37.95	37.25	37.02	38.14
1260	TH01 EBP	DGC	23.15	25.88	27.50	29.65	29.87	29.51	29.29	28.90	29.98
1261	TH02 EBP	DGC	18.71	21.90	23.49	25.72	25.87	25.34	25.02	24.56	25.93
1262	TH03 EBP	DGC	16.64	20.93	22.00	24.32	24.26	23.42	22.88	22.65	24.37
1263	TH01 STS	DGC	- 1.25	0.14	2.44	3.76	3.92	3.04	4.60	3.41	4.49
1264	TH02 STS	DGC	- 10.75	- 9.90	- 7.24	- 6.45	- 6.43	- 7.51	- 4.91	- 6.29	- 4.70
1265	TH03 STS	DGC	5.35	4.66	9.62	10.39	10.75	12.29	13.98	11.71	12.74
1266	TH04 STS	DGC	- 11.52	- 7.46	- 3.79	- 1.24	- 1.23	- 0.41	- 0.49	- 2.46	- 0.20
1267	TH05 STS	DGC	6.37	6.39	9.91	10.51	10.51	10.47	12.58	10.80	12.20
1224	SAD R FSST	DGC	31.58	40.59	40.37	42.08	41.79	39.91	39.65	39.78	41.71
1244	SAD L FSST	DGC	40.97	41.54	42.91	43.91	44.14	44.15	44.26	44.15	44.00

SECTION 5  
COMMAND/CLOCK SUBSYSTEM (CMD)

The Command Clock Subsystem operated nominally in this report period.

The spacecraft clock was reset during Orbit 4956 on 24 February 1979 from 1596 ms fast to 596 ms fast.

Figures 5-1, 5-2, and 5-3 show clock performance since launch. The clock of Landsat-3 drifts in the same direction as Landsat-2.

Table 5-1 shows typical telemetry values since launch. All telemetry values are nominal.



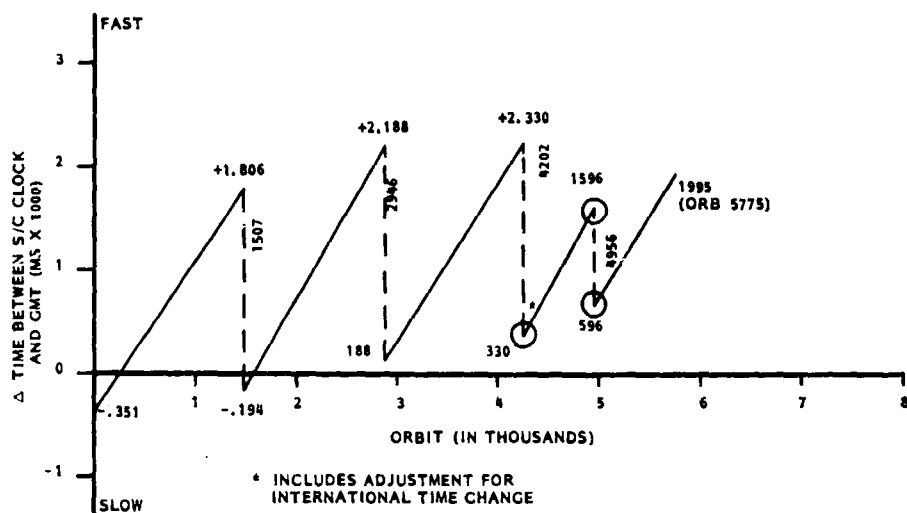


Figure 5-1. Landsat-3 Clock Drift from GMT

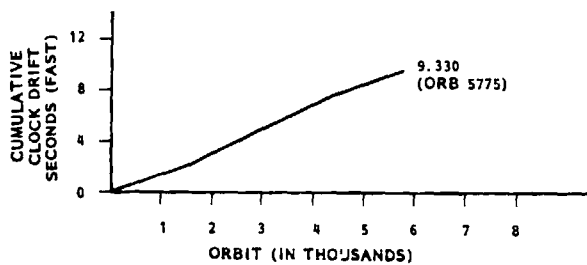


Figure 5-2. Landsat-3 Cumulative Clock Drift

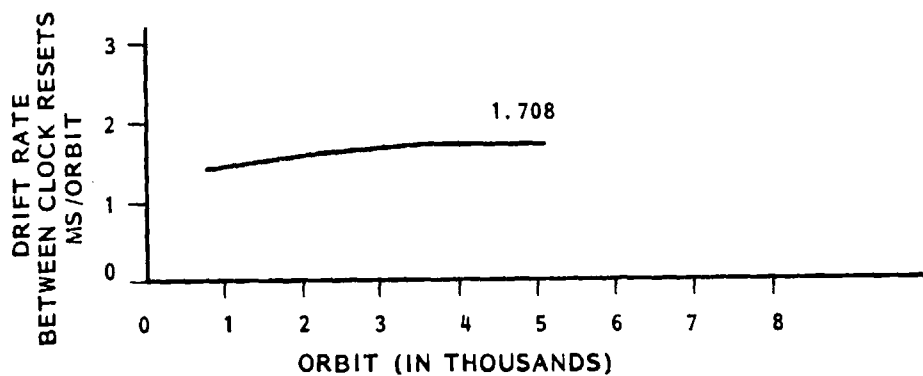


Figure 5-3. Landsat-3 Clock Drift Rate

Table 5-1. Command Clock Telemetry Summary

Fun	Name	Units	Orbit									
			34	1431	2711	3550	4001	4430	4761	5152	5595	
8005	Pri. Power Supply Temp	DGC	41.25	42.97	42.81	42.23	44.04	43.15	42.96	43.09	42.43	
8006	Red. Power Supply Temp	DGC	41.59	43.37	43.18	43.81	44.41	43.71	43.53	43.75	43.10	
8007	Pri. Osc. Temp	DGC	30.28	30.77	30.34	31.10	31.95	31.21	31.06	31.11	30.25	
8008	Red. Osc. Temp	DGC	31.21	31.61	31.15	31.63	32.53	31.80	31.57	31.62	30.67	
8009	Pri. Osc. Output	TMV	1.05	1.06	1.06	1.07	1.08	1.07	1.07	1.07	1.07	
8010	Red. Soc. Output	TMV	1.24	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
8011	100 KHz	TMV	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	3.13	
8012	10 KHz	TMV	3.07	3.07	3.06	3.06	3.07	3.06	3.06	3.06	3.07	
8013	2.5 KHz	TMV	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	2.95	
8014	400 Hz	TMV	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	4.45	
8015	Pri. + 4V Power Supply	VDC	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	
8016	Red. + 4V Power Supply	VDC	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	
8017	Pri. + 6V Power Supply	VDC	2.28	2.27	2.27	2.27	2.27	2.28	2.28	2.27	2.27	
8018	Red. + 6V Power Supply	VDC	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	
8019	Pri. - 6V Power Supply	VDC	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	5.25	
8020	Red. - 6V Power Supply	VDC	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	
8021	Pri. - 23V Power Supply	VDC	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	5.70	
8022	Red. - 23V Power Supply	VDC	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	5.80	
8023	Pri. - 29V Power Supply	VDC	5.42	5.43	5.43	5.43	5.43	5.43	5.43	5.43	5.43	
8024	Red. - 29V Power Supply	VDC	5.38	5.40	5.39	5.39	5.40	5.39	5.40	5.40	5.39	
8101	CIU A - 12V	VDC	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	3.95	
8102	CIU B - 12V	VDC	3.98	3.98	3.99	3.99	3.99	3.99	3.99	3.99	3.99	
8103	CIU A - 5V	VDC	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	4.12	
8104	CIU B - 5V	VDC	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15	
8105	CIU A Temp.	DGC	22.53	22.01	22.02	22.48	23.04	22.70	22.53	22.63	21.62	
8106	CIU B Temp.	DGC	20.36	19.96	19.98	20.33	20.83	20.52	20.40	20.48	19.64	
8201	Receiver RF-A Temp.	DGC	28.70	28.79	28.48	29.01	30.06	29.30	28.91	29.10	28.08	
8202	Receiver RF-B Temp.	DGC	21.74	21.76	21.30	22.06	23.37	22.36	21.84	22.11	20.82	
8203	D MOD A Temp	DGC	36.00	36.55	36.35	36.80	37.59	37.09	36.84	36.94	35.94	
8204	D MOD B Temp	DGC	25.27	25.50	25.21	25.79	26.79	26.09	25.72	25.91	24.58	
8205	Receiver A AGC	DBM	-81.89	-86.05	-88.71	-91.46	-92.78	-94.89	-88.20	-86.70	-93.02	
8206	Receiver B AGC	DBM	F	F	F	F	F	F	F	F	F	
8207	Amp. A Output	TMV	2.41	2.35	2.44	2.33	2.39	2.55	2.44	2.48	2.06	
8208	Amp. B Output	TMV	F	F	F	F	F	F	F	F	F	
8209	Freq. Shift Key A Out	TMV	1.09	1.08	1.08	1.08	1.08	1.08	1.08	1.09	1.08	
8210	Freq. Shift Key B Out	TMV	F	F	F	F	F	F	F	F	F	
8211	Amp. A Output	TMV	1.12	1.10	1.11	1.10	1.10	1.11	1.10	1.12	1.10	
8212	Amp. B Output	TMV	F	F	F	F	F	F	F	F	F	
8215	D MOD A - 15V	TMV	5.01	5.02	5.02	5.02	5.02	5.02	5.02	5.02	5.02	
8216	D MOD B - 15V	TMV	F	F	F	F	F	F	F	F	F	
8217	Regulator A - 10V	TMV	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.52	5.51	
8218	Regulator B - 10V	TMV	F	F	F	F	F	F	F	F	F	
8311	ECAM Memory Temp	DGC	16.18	15.43	15.22	16.25	16.79	16.37	15.93	15.93	15.22	
8312	ECAM Pwr. Sup Temp	DGC	19.59	16.80	16.43	18.13	18.99	18.42	17.69	17.70	16.49	

F = Unit OFF

SECTION 6  
TELEMETRY SUBSYSTEM (TLM)

The TLM Subsystem has operated nominally during this report period. Table 6-1 shows typical telemetry values since launch. All are nominal. Landsat-3 has redundant capability and "A" units have been operated since launch. Telemetry format "0" (fast verify) is in use.

## SECTION 7

### ORBIT ADJUST SUBSYSTEM (OAS)

An orbit adjust was performed during Orbit 5301 (20 March 1979) to correct the spacecraft's eastward ground track drift. The ACS was commanded into the Orbit Adjust mode with pneumatics enabled and the OA system's performance was normal.

The minus X thruster was fired for 18.8 seconds and the spacecraft's altitude was increased by 137.7 meters.

Burn efficiency was calculated at 109.7%.

Figures 7-1, 7-2, 7-3 and 7-4 show the OA and ACS system's performance during the orbit adjust maneuver.

Table 7-1 summarizes all of the OAS system's operations since launch.

Table 7-2 shows typical telemetry values for the OAS during its quiescent periods. Variations in thrust chamber temperatures shown in Table 7-2 are consistent with variations in sun intensity and sun angle.



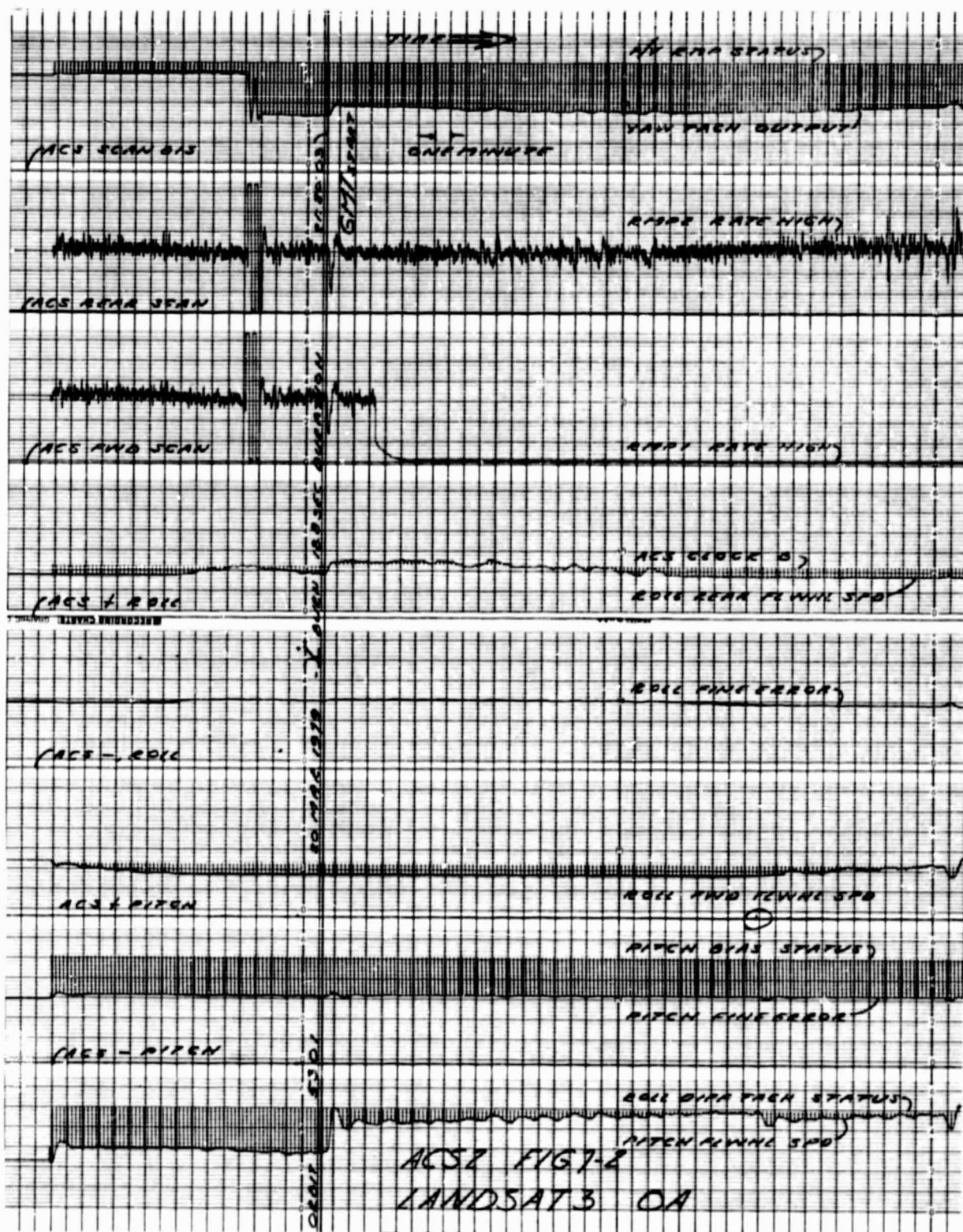


Figure 7-2. ACS 2 - Landsat-3 OA









Table 7-1. Landsat-3 Orbit Adjust Summary

Orbit Adjust No.	Orbit No.	Epoch (Burn Start Time)	Burn Axis	Burn Duration (secs)	Post-Burn Freon Status (psia)	Hydra-Zine Consumed (lbs)	Post-Burn Hz Tank P (psia)	Burn Efficiency (%)	$\Delta a$ (Meters)	$\Delta i$ (degrees)
1	26	7 Mar 78 14:33:11.4	+X	5.2	N	0.02	532.44	N	N	0.0
2	26	7 Mar 78 14:40:01.2	-X	5.2	2006.12	0.02	532.44	N	N	0.0
3	30	7 Mar 78 21:23:01.2	+X	420.0	2012.09	1.58	532.44	107.2	-3662.2	0.0
4	109	13 Mar 78 21:00:01.2	-X	660.0	2004.51	2.30	476.20	103.7	4932.5	0.0
5	115	13 Mar 78 23:43:09.2	-X	112.0	2016.25	0.36	424.17	108.1	804.0	0.0
6	253	22 Mar 78 21:00:01.2	+X	4.8	2012.46	0.01	419.94	109.5	- 35.7	0.0
7	4059	21 Dec 78 19:47:01.2	-X	12.8	1899.96	0.04	434.96*	101.1	85.7	0.0
8	5301	20 Mar 79 21:20:03	-X	18.8	1779.94	0.06	434.94	109.7	137.7	0.0

N - Data Not Available

\* - Pressure increased due to seasonal temperature increase.

Table 7-2. Landsat-3 OAS Telemetry Values

Func	Name	Units	Orbit								
			140	1430	2700	3550	4001	4430	4761	5152	5595
2001	Prop. Tank Temp.	DGC	15.55	17.64	18.05	18.89	19.72	20.14	20.14	19.72	17.22
2003	Thrust Chamber No. 1 (-x) Temp.	DGC	28.15	35.34	32.15	33.61	33.01	28.63	28.95	30.02	32.54
2004	Thrust Chamber No. 2 (+x) Temp.	DGC	32.88	36.77	35.91	38.15	38.21	38.01	35.84	35.34	35.48
2005	Thrust Chamber No. 3 (-y) Temp.	DGC	50.31	36.51	43.96	45.17	49.62	53.97	55.88	53.01	44.66
2006	Line Pressure	psia	416.59	427.44	430.62	434.94	434.94	435.48	436.81	436.08	431.19

## SECTION 8

### MAGNETIC MOMENT COMPENSATION ASSEMBLY (MMCA)

The MMCA's operational mode has not been altered from its launch configuration.

Presently, no plan exists to implement MMCA compensation. Payload operations have not generated unusual magnetic torques that result in buildup of spacecraft momentum.

MMCA telemetry values are shown in Table 8-1.

Table 8-1. MMCA Telemetry Values

Func	Name	Units	Orbit								
			4	1431	2700	3550	4001	4430	4761	5152	5595
4001	A1 Board Temp	DGC	17.66	17.52	17.56	17.76	18.23	17.93	17.70	17.79	16.52
4002	A1 Board Temp	DGC	20.31	20.23	20.31	20.48	21.06	20.77	20.45	20.59	19.29
4003	Hall Current	TMV	3.65	3.62	3.62	3.62	3.62	3.62	3.62	3.62	3.62
4004	Yaw Flux Density	TMV	3.24	3.22	3.23	3.22	3.23	3.23	3.23	3.23	3.23
4005	Pitch Flux Density	TMV	3.20	3.19	3.20	3.18	3.18	3.18	3.19	3.19	3.19
4006	Roll Flux Density	TMV	3.15	3.12	3.12	3.12	3.11	3.12	3.12	3.12	3.12

SECTION 9  
UNIFIED S-BAND/PREMODULATION PROCESSOR (USB/PMP)

The USB Subsystem has operated nominally in this report period.

Table 9-1 shows telemetry values since launch. All are nominal. The transmitter has maintained a steady indicated power output of about 1.6 watts since launch.

USB transmitter signal levels measured at Goldstone with the spacecraft successively at the same points in space show continuous satisfactory USB performance.

Table 9-1. Landsat-3 USB/PMP Telemetry Values

Func	Description	Units	Orbit									
			50	1521	2721	3552	4001	4430	4761	5152	5595	
11001	USB Rcvr AGC	dBm	-101.62	-93.62	-109.30	-120.68	-138.06	-121.98	-106.07	-90.23	-132.00	
11002	USB Xmtr Pwr	W	1.65	1.65	1.67	1.69	1.69	1.66	1.66	1.66	1.65	
11003	USB Rcvr Error	KHz	1.81	3.63	2.92	6.25	3.76	3.80	0.98	4.52	4.21	
11004	USB Xpond Temp	DGC	24.63	22.50	23.81	24.94	25.78	26.24	26.77	26.57	23.01	
11005	USB Xpond Press	PSI	17.00	16.95	17.00	17.00	17.00	17.00	17.00	17.00	17.00	
11007	USB Xmtr A -15V	VDC	F	F	F	F	F	F	F	F	F	
11008	USB Xmtr B -15V	VDC	2.35	2.36	2.36	2.35	2.36	2.35	2.35	2.36	2.35	
11009	USB Range -15V	VDC	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	2.05	
11101	PMP Pwr A Volt	VDC	F	F	F	F	F	F	F	F	F	
11102	PMP Pwr B Volt	VDC	- 15.11	-15.10	- 15.10	- 15.05	- 15.06	- 15.06	- 15.02	-15.06	- 15.12	
11103	PMP Temp A	DGC	21.48	17.29	19.79	21.46	22.71	24.90	25.10	24.75	19.08	
11104	PMP Temp B	DGC	25.96	22.18	24.48	26.43	27.64	29.78	29.99	29.77	23.47	

F = Unit OFF

SECTION 10  
ELECTRICAL INTERFACE SUBSYSTEM (EIS)

Search Track Data and Backup Timers in the Auxiliary Processing Unit (APU) operated satisfactorily throughout this report period. Telemetry for the APU is shown in Table 10-1.

The Power Switching Module (PSM), containing the switching relays for power to the OAS, MSS, WBVTR No. 1 and No. 2, RBV and PRM, functioned normally. During this report period, the MSS, RBV, WBVTR-1 and WBVTR No. 2 power circuits, have been operated on a regular basis.

The Interface Switching Module performed all switchings normally during this report period.

The Auxiliary Load Controller (ALC) performed all switching normally during this report period.

Table 10-1. Landsat-3 APU Telemetry Functions

Func	Description	Unit	Orbit								
			43	1464	2700	3550	4001	4430	4761	5152	5595
13200	APU, -24.5 Vdc	TMV	2.62	2.62	2.63	2.63	2.63	2.63	2.63	2.63	
13201	APU, -12 Volts	TMV	2.42	2.43	2.43	2.43	2.43	2.43	2.43	2.43	
13202	APU Temp	DGC	24.43	23.24	23.78	24.13	25.00	24.80	24.73	24.75	23.28



## SECTION 11

### THERMAL SUBSYSTEM (THM)

Since launch Landsat-3's Thermal Control Subsystem has provided satisfactory temperature control for all of the spacecraft equipment.

Table 11-1 summarizes average subsystem temperature telemetry values occurring over the 13 months of Landsat-3's existence.

Average temperatures in the sensory ring bays are plotted in Figure 11-1.

During this report period, sun intensity decreased from 1.032 to 0.989 times the mean value. In addition, spacecraft night length increased as the sun angle decreased. Consequently, the average spacecraft temperatures were slightly lower this quarter.

A history of compensation load switching is shown in Table 11-2.

Compensation load number 8 was turned off in Orbit 5571 (9 April 1979) as part of the MSS test program.

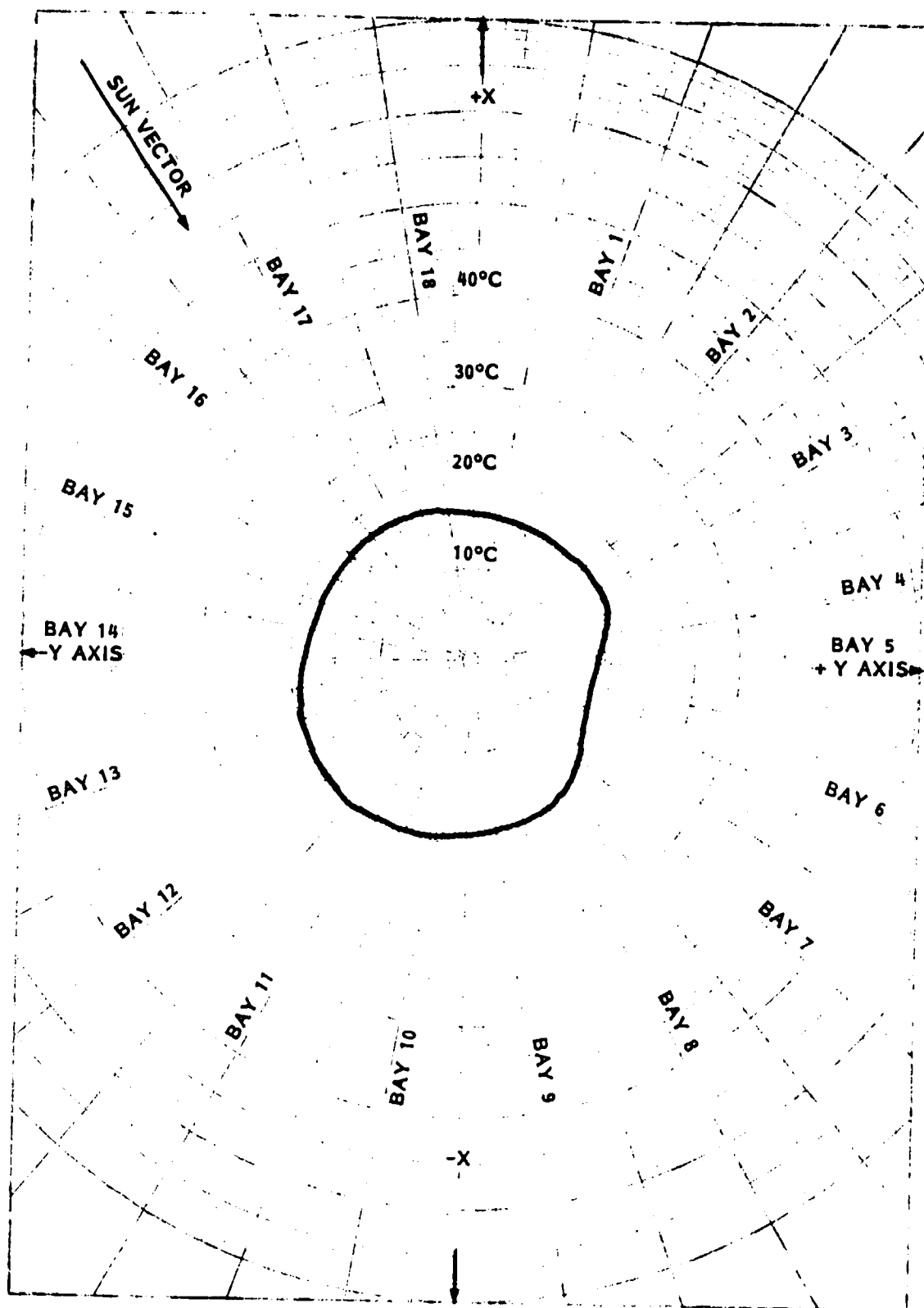


Figure 11-1. Landsat-3 Sensory Ring Average Bay Temperatures, Orbit 5595, 10 April 1979

Table 11-1. Landsat-3 Thermal Subsystem Analog Telemetry  
(Average Value for Frames of Data Received in NBTR Playback)

Function No.	Name	Unit	Orbit									
			50	1464	2700	3550	4201	4430	4761	5152	5595	
7001	THM TH02SBM	DGC	15.52	14.89	15.31	16.53	17.27	16.97	15.70	16.38	14.75	
7002	THM TH01SBO	DGC	16.73	15.99	16.59	17.46	18.30	18.17	17.17	17.60	16.05	
7003	THM TH03SBI	DGC	16.40	16.13	16.30	17.94	18.38	18.31	16.65	17.15	15.88	
7004	THM TH10TCB	DGC	19.92	19.09	19.77	20.12	21.21	20.82	20.92	20.92	19.28	
7005	THM TH11SBM	DGC	21.11	19.84	20.75	21.29	22.42	22.15	22.47	22.38	20.17	
7006	THM TH05SBA	DGC	15.74	15.97	15.89	16.56	17.00	16.60	15.79	16.23	15.16	
7007	OA-X THRUSTER	DGC	20.20	21.05	20.88	21.38	21.90	20.99	20.89	21.05	20.51	
7008	THM TH02TCB	DGC	16.55	15.91	16.64	17.52	18.17	17.82	16.76	17.39	15.72	
7009	THM TH07SBM	DGC	16.08	16.48	16.08	16.67	17.90	16.95	16.14	16.48	15.26	
7010	THM TH08SBI	DGC	17.93	18.02	17.97	18.39	19.59	18.71	18.28	18.47	17.24	
7011	THM TH09SBM	DGC	20.02	20.07	20.17	20.62	21.48	20.75	20.63	20.74	19.62	
7012	THM TH10SBO	DGC	18.84	18.61	18.94	19.31	20.03	19.37	19.55	19.55	18.56	
7013	THM TH04SBM	DGC	16.47	16.69	16.41	18.02	18.19	18.12	16.50	16.99	16.31	
7014	THM TH11STO	DGC	20.46	19.41	20.26	20.73	21.60	21.22	21.71	21.60	19.79	
7015	THM TH12SBI	DGC	21.64	19.51	20.32	21.67	22.93	23.26	23.63	23.46	20.23	
7016	THM TH12STO	DGC	21.45	19.36	20.52	21.75	22.57	22.69	23.43	23.22	20.06	
7017	RBV BEAM CTR LN	DGC	20.89	20.14	20.61	21.05	22.30	21.89	21.81	21.82	19.92	
7018	THM TH13SBM	DGC	21.88	18.94	20.59	21.44	22.99	23.76	24.27	23.74	20.08	
7019	NPR RAD OUTBDB4	DGC	2.73	2.53	2.68	3.07	3.68	3.42	3.20	3.26	1.78	
7020	THM TH13STM	DGC	22.42	19.84	21.24	22.32	23.52	24.16	24.63	24.30	20.72	
7021	THM TH14SBI	DGC	20.86	17.50	19.42	20.36	22.12	23.37	23.79	23.04	18.80	
7022	THM TH14STO	DGC	20.48	17.00	19.17	19.97	21.48	22.51	23.22	22.47	18.64	
7023	THM TH15SBM	DGC	19.95	16.18	18.42	19.59	21.37	23.35	23.83	22.64	18.06	
7030	THM TH15STO	DGC	19.43	15.90	18.31	19.47	21.05	22.56	23.11	22.04	17.96	
7031	THM TH16SBM	DGC		14.76	16.60	17.87	19.51	21.51	21.44	20.31	16.33	
7032	THM TH17SBI	DGC		16.95	18.45	19.48	20.98	22.00	21.60	21.12	17.76	
7035	THM TH05TCB	D°C	16.17	16.41	16.63	16.97	17.61	17.11	16.46	16.98	15.45	
7034	THM TH19SBM	DGC		16.15	17.43	18.27	19.56	20.06	19.53	19.34	16.80	
7035	THM TH18STM	DGC	18.04	16.47	17.53	18.32	19.23	19.66	19.02	19.05	16.52	
7040	THM TH01TCB	DGC	16.45	15.64	16.29	17.13	18.07	17.60	16.67	17.44	15.65	
7041	THM TH06STO	DGC	13.27	13.52	13.48	14.02	14.77	14.08	13.46	13.85	12.50	
7042	THM TH03TCB	DGC	16.49	16.88	15.96	18.77	18.54	18.80	16.15	16.68	16.64	
7043	THM TH04TCB	DGC	17.98	18.16	18.07	19.15	19.25	19.14	17.96	18.41	17.75	
7044	THM TH17STO	DGC	17.99	16.13	17.22	18.38	19.95	21.22	20.42	19.63	16.97	
7045	THM TH07TCB	DGC	16.16	16.41	16.36	16.69	18.03	16.96	16.31	16.64	15.53	
7046	THM TH09TCB	DGC	18.93	18.84	19.14	19.42	20.03	19.61	19.56	19.69	18.62	
7048	THM TH11TCB	DGC	21.59	20.07	21.19	22.75	22.75	22.82	23.12	23.10	20.59	
7049	THM TH18TCB	DGC	21.45	16.83	20.33	21.83	23.83	23.83	23.83	23.83	23.83	

7050	THM TH13TCB	DGC	19.31	20.99	21.68	23.27	24.02	24.50	23.92	20.50
7051	THM TH14TCB	DGC	16.97	19.35	20.41	22.05	23.62	24.32	23.39	18.90
7052	THM TH16TCB	DGC	17.00	18.73	19.92	21.49	22.95	23.09	22.20	18.47
7053	THM TH17TCB	DGC	17.58	18.52	19.35	20.76	21.32	20.72	20.36	17.95
7054	THM TH18TCB	DGC	15.95	16.89	17.49	18.29	18.54	18.08	18.05	16.12
7055	THM SHUTTER BAY 1	DEG	2.14	7.17	14.39	28.60	21.16	9.98	21.84	3.16
7056	THM SHUTTER BAY 2	DEG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7057	THM SHUTTER BAY 3	DEG	7.02	1.07	1.50	21.36	22.09	3.46	4.77	6.06
7058	THM SHUTTER BAY 4	DEG	9.78	12.79	15.80	21.24	18.96	13.09	15.35	3.74
7059	THM SHUTTER BAY 5	DEG	3.33	3.34	4.31	4.67	5.46	4.75	6.11	1.33
7060	THM SHUTTER BAY 6	DEG	1.08	0.00	1.94	11.54	4.84	2.49	3.11	0.00
7061	THM SHUTTER BAY 7	DEG	28.00	30.02	31.08	35.45	33.30	33.14	33.75	24.98
7062	THM SHUTTER BAY 8	DEG	23.56	28.97	31.88	39.49	38.07	37.66	37.81	25.20
7063	THM SHUTTER BAY 9	DEG	29.52	36.78	40.71	47.31	49.13	50.05	50.02	33.01
7064	THM SHUTTER BAY 10	DEG	24.08	33.63	41.21	48.54	54.59	55.42	54.20	29.78
7065	THM SHUTTER BAY 11	DEG	15.57	28.23	32.91	43.10	48.85	49.86	46.66	22.71
7066	THM SHUTTER BAY 12	DEG	0.00	6.80	13.83	25.64	35.67	39.82	35.01	3.87
7067	THM SHUTTER BAY 13	DEG	17.35	7.71	19.21	31.09	37.45	33.15	35.41	6.92
7068	THM SHUTTER BAY 14	DEG	18.29	11.20	22.30	33.68	35.48	34.32	32.43	7.12
7069	THM SHUTTER BAY 15	DEG	11.42	4.59	12.23	21.69	23.59	20.50	20.70	0.00
7070	THM Q1 T ZENER V	TNV	4.93	4.92	4.93	4.93	4.93	4.93	4.93	4.92
7071	THM Q2 T ZENER V	TNV	5.08	5.09	5.09	5.06	5.06	5.10	5.10	5.09
7072	THM Q3 T ZENER V	TNV	5.05	5.05	5.06	5.06	5.06	5.06	5.06	5.05
7073	THM Q1 S ZENER V	TNV	5.01	5.01	5.01	5.01	5.01	5.02	5.02	5.00
7074	THM Q2 S ZENER V	TNV	4.90	4.90	4.90	4.91	4.91	4.91	4.91	4.90
7075	THM Q3 S ZENER V	TNV	5.03	5.04	5.04	5.05	5.05	5.05	5.05	5.04
7076	THM TH ECAM M	DGC	17.31	17.50	18.57	19.43	18.93	18.34	18.34	17.12
7077	THM IND ATTITUDE	DGC	18.05	19.78	20.66	22.42	23.54	23.91	23.27	19.19
7078	THM RBV RADIATOR	DGC	12.15	12.65	13.19	14.67	14.08	14.13	14.01	11.92
7079	THM RBVC CTR BM	DGC	16.70	17.22	17.78	19.63	19.03	18.88	18.79	16.28
7080	THM WBVTR BOOT	DGC	9.71	10.37	11.42	12.41	12.83	12.21	12.16	9.27
7081	THM WBVTR RAD CT	DGC	- 1.22	- 0.09	0.85	1.57	1.86	1.00	0.82	- 0.36
7082	THM WBVTR STRAP	DGC	12.84	12.85	13.78	14.76	14.99	14.32	14.48	11.71
7083	THM WBMT BAY 1	DGC	17.05	16.34	16.57	16.71	17.07	16.28	17.17	13.31
7084	THM WBMT BAY 18	DGC	16.50	15.34	16.68	16.39	17.21	16.16	16.91	12.82
7085	THM WBVTR SEP 3	DGC	15.40	15.23	16.44	16.98	17.02	15.79	16.26	14.37
7086	THM WBVTR SEP 17	DGC	18.42	17.78	18.61	19.82	20.52	20.11	20.03	16.63
7087	THM WBVTR 1 CENT	DGC	16.46	16.15	16.80	17.74	18.00	17.40	17.75	14.70
7088	THM VTR2 BAY 4	DGC	15.75	15.67	16.68	17.28	17.17	16.28	16.57	14.92
7089	THM VTR2 BAY 15	DGC	18.42	17.28	18.64	19.84	21.13	21.02	20.56	16.34
7090	THM WBVTR2 CTR	DGC	16.52	15.89	17.08	17.96	18.64	18.09	18.22	14.36
7091	THM NBTRB SEP 5	DGC	15.98	15.78	16.40	17.26	17.01	16.74	16.93	14.53
7092	THM NBTR3 SEP 1	DGC	20.40	19.24	20.31	21.79	22.74	22.92	22.49	18.42
7093	THM NBTR BM CTR	DGC	17.71	16.99	18.05	19.45	19.56	19.17	19.08	15.70
7094	THM MSS MOUNT 14	DGC	16.14	15.72	16.92	18.69	19.74	19.67	19.05	15.02
7095	OA-Y THRUSTER	DGC	23.15	21.05	22.08	23.89	25.56	26.19	25.20	20.59
7096	THM MSS WBVTR BM	DGC	13.97	14.01	15.12	16.23	16.46	15.90	15.88	12.77
7097	OA +X THRUSTER	DGC	16.80	16.06	16.79	17.14	17.45	16.59	17.07	13.98
7098	THM AVN P1 T	DGC	36.47	24.69	36.85	40.35	37.18	28.57	24.84	23.18
7099	THM AVN P2 T	DGC	33.24	34.33	27.46	14.68	26.71	40.79	34.66	36.91

Table 11-2. Landsat-3 Compensation Load History

Compensation Load Status\*

Orbits	1	2	3	4	5	6	7	8
Launch	0	0	0	0	0	0	0	0
3	0	0	X	X	X	0	X	X
34	0	0	X	X	X	X	X	X
48	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	X
3074	X	X	X	X	X	0	X	X
3081	0	0	0	0	0	0	0	X
5571	0	0	0	0	0	0	0	0

# SECTION 12

## NARROWBAND TAPE RECORDERS (NBR)

The Narrowband Recorder Subsystem operated satisfactorily throughout the entire report period, both Recorders alternating in Record and Playback modes with a nominal one minute overlap.

Table 12-1 gives cumulative operating hours for both Recorders by mode, and Table 12-2 gives typical telemetry values.

Table 12-1. NBR Operating Hours by Mode

NBR	On	Off	Playback	Record
A	4664	5183	204	4979
B	4664	5183	204	4979

Table 12-2. Narrow Band Tape Recorder Telemetry Values

			Orbits								
Func	Name	Units	30/31	1524/25	2795/96	3541/3560	3903/3911	4453/54	4764/4775	5151/5152	5569/5554
10001	A-Motor Current Record P/B	mA	182.47	182.47	182.47	182.47	182.47	182.47	182.47	182.42	182.47
			179.38	177.83	177.83	177.83	177.83	176.29	177.83	177.83	177.83
10101	B-Motor Current Record P/B	mA	150.05	142.88	139.29	140.81	140.81	136.22	133.16	133.16	133.16
			142.34	142.34	134.69	133.16	133.16	133.16	128.57	128.57	128.57
10002	A-Pwr Supply Cur Record P/B	mA	167.57	170.95	167.57	170.95	170.95	170.95	170.55	167.57	170.95
			387.12	383.75	380.39	383.75	383.75	383.75	387.13	383.75	383.75
10102	B-Pwr Supply Cur Record P/B	mA	186.67	186.66	183.33	186.66	186.66	186.66	186.66	186.66	186.66
			406.62	419.95	419.95	413.32	413.32	413.32	413.32	413.32	413.32
10003	A-Recorder Temp	DGC	20.43	17.61	20.43	20.65	22.39	22.39	22.17	22.61	21.95
10103	B-Recorder Temp	DGC	19.35	21.30	21.52	20.87	20.87	23.04	22.38	23.04	22.83
10004	A-Pwr Supply	VDC	-24.37	-24.38	-24.50	-24.50	-24.50	-24.50	-24.50	-24.50	-24.50
10104	B-Pwr Supply	BDC	-24.38	-24.38	-24.50	-24.62	-24.62	-24.62	-24.62	-24.62	-24.62

# SECTION 12

## NARROWBAND TAPE RECORDERS (NBR)

The Narrowband Recorder Subsystem operated satisfactorily throughout the entire report period, both Recorders alternating in Record and Playback modes with a nominal one minute overlap.

Table 12-1 gives cumulative operating hours for both Recorders by mode, and Table 12-2 gives typical telemetry values.

Table 12-1. NBR Operating Hours by Mode

NBR	On	Off	Playback	Record
A	4664	5183	204	4979
B	4664	5183	204	4979

Table 12-2. Narrow Band Tape Recorder Telemetry Values

Func	Name	Units	Orbits								
			20/31	1524/25	2795/96	3547/360	3902/3911	4453/34	4764/34	5131/34	5575/34
10001	A-Motor Current	mA	182.47	182.47	182.47	182.47	182.47	182.47	182.47	182.47	182.47
			179.83	177.83	177.83	177.83	177.83	176.29	177.83	177.83	177.83
10101	B-Motor Current	mA	139.09	142.87	139.20	139.81	139.81	139.27	139.16	139.16	139.16
			142.34	142.34	134.69	133.16	133.16	138.57	138.57	138.57	138.57
10002	A-Pwr Supply Cur	mA	167.57	170.96	167.57	170.96	170.96	170.96	170.96	170.96	170.96
			387.42	383.75	380.39	383.75	383.75	383.75	383.75	383.75	383.75
10102	B-Pwr Supply Cur	mA	186.67	186.66	186.66	186.66	186.66	186.66	186.66	186.66	186.66
			496.62	419.96	419.96	419.96	419.96	419.96	419.96	419.96	419.96
10003	A Recorder Temp	DGC	20.43	17.61	20.43	20.63	22.39	22.39	22.12	22.61	21.63
10103	B Recorder Temp	DGC	19.53	21.30	21.32	20.87	20.87	22.04	22.10	22.04	22.83
10004	A Pwr Supply	VDC	24.57	24.58	24.50	24.56	24.56	24.56	24.56	24.56	24.56
10104	B Pwr Supply	VDC	24.58	24.58	24.56	24.57	24.56	24.56	24.56	24.56	24.56

SECTION 13  
WIDEBAND TELEMETRY SUBSYSTEM (WBTS)

The WBTS has operated nominally in this report period.

Table 13-1 shows typical telemetry values.

Signal levels measured at Goldstone with the spacecraft successively at the same points in space, show continuously satisfactory performance.

Table 13-1. Typical Wideband Subsystem Telemetry

Func*	Name	Units	Orbit								
			34/50	1521	2721	3552	4001	4430	4761/4764	5151/5152	5595/5569
12001	Temp TWT Coll	DGC	39.38	39.13	38.13	31.88	34.81	38.15	17.50	31.88	16.48
12101			29.07	30.00	26.60	28.20	29.07	28.15	26.60	26.37	26.60
12002	Cur. Helix	mA	4.73	4.79	4.80	4.74	4.71	4.80	4.86	4.87	4.86
12102			6.50	6.22	6.06	6.11	6.12	6.15	6.17	6.05	5.98
12003	Cur. Cath	mA	44.50	44.40	44.03	43.92	43.88	43.93	43.87	43.94	43.87
12103			40.32	39.53	39.41	39.32	39.32	39.28	39.43	39.50	39.40
12004	Forward Power	dBm	42.04	42.25	42.26	42.24	42.25	42.25	42.27	42.26	42.27
12104			42.46	42.79	42.79	42.77	42.75	42.75	42.79	42.74	42.79
12005	Refl. Pwr.	dBm	30.00	30.00	28.62	28.56	28.65	28.65	28.60	28.74	28.70
12105			31.80	31.74	31.35	31.31	31.31	31.24	31.63	31.44	31.26
12227	Mod A Volt Loop Stress	MHz	+1.45	-0.81	-1.04	-1.26	-1.34	-1.28	-1.16	-1.25	-1.16
12228	Mod B Loop Stress	MHz	1.26	0.10	0.05	0.05	0.01	0.13	-0.03	-0.06	-0.17
12229	Temp. Mod	DGC	14.51	17.25	17.14	17.95	18.55	18.15	15.32	16.00	16.36
12232	+15 VDC Pwr Supply	TMV	2.68	2.69	2.69	2.69	2.68	2.69	2.68	2.69	2.69
12234	-15 VDC Pwr Supply	TMV	4.38	4.34	4.35	4.32	4.33	4.34	4.39	4.38	4.36
12236	+5 VDC Pwr Supply	TMV	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.04	4.05
12238	-5 VDC Pwr Supply	TMV	5.18	5.13	5.13	5.14	5.16	5.17	5.14	5.16	5.15
12240	-24 VDC Unreg Pwr	TMV	6.15	6.12	6.12	6.07	6.08	6.08	6.12	6.10	6.12
12242	Temp. Inv.	DGC	18.45	17.75	18.30	19.49	19.81	19.60	18.38	19.05	17.40

\* 120XX applies to WPA-1; 121XX applies to WPA-2; 122XX applies to modulator.



# SECTION 13

## WIDEBAND TELEMETRY SUBSYSTEM (WBTS)

The WBTS has operated nominally in this report period.

Table 13-1 shows typical telemetry values.

Signal levels measured at Goldstone with the spacecraft successively at the same points in space, show continuously satisfactory performance.

Table 13-1. Typical Wideband Subsystem Telemetry

Func*	Name	Units	Orbit								
			34/50	1521	2721	3552	4001	4430	4761/4764	5151/5152	5595/5599
12001	Temp TWT Coll	DGC	39.38	39.13	38.13	31.88	34.81	38.15	17.50	31.88	16.48
12101			29.07	30.00	26.60	28.20	29.07	28.15	26.60	26.37	26.60
12002	Cur. Helix	mA	4.73	4.79	4.80	4.74	4.71	4.80	4.86	4.87	4.86
12102			6.59	6.22	6.06	6.11	6.12	6.15	6.17	6.05	5.88
12003	Cur. Cath	mA	44.50	44.40	44.03	43.92	43.86	43.93	43.87	43.94	43.87
12103			40.32	39.53	39.41	39.32	39.32	39.28	39.43	39.50	39.40
12004	Forward Power	dBm	42.04	42.25	42.26	42.24	42.25	42.25	42.27	42.26	42.27
12104			42.46	42.79	42.79	42.77	42.75	42.75	42.73	42.74	42.79
12005	Refl. Pwr.	dBm	50.00	30.00	28.62	28.56	28.65	28.65	28.60	28.74	28.70
12105			31.80	31.74	31.35	31.31	31.31	31.24	31.63	31.44	31.26
12227	Mod A Volt Loop Stress	MHz	+1.45	-0.81	-1.04	-1.26	-1.24	-1.28	-1.16	-1.25	-1.16
12228	Mod B Loop Stress	MHz	1.26	0.10	0.05	0.95	0.01	0.15	-0.03	-0.06	-0.17
12229	Temp. Mod	DGC	14.51	17.25	17.14	17.95	18.55	18.15	15.32	16.00	16.36
12232	+15 VDC Pwr Supply	TMV	2.63	2.69	2.69	2.69	2.68	2.69	2.68	2.69	2.69
12234	-15 VDC Pwr Supply	TMV	4.38	4.34	4.35	4.32	4.33	4.34	4.39	4.38	4.36
12236	+5 VDC Pwr Supply	TMV	4.05	4.05	4.05	4.05	4.05	4.05	4.05	4.04	4.05
12238	-5 VDC Pwr Supply	TMV	5.18	5.13	5.13	5.14	5.16	5.17	5.14	5.16	5.15
12240	-24 VDC Unreg Pwr	TMV	6.15	6.12	6.12	6.07	6.08	6.08	6.12	6.10	6.12
12242	Temp. Inv.	DGC	18.45	17.75	18.30	19.49	19.81	19.60	18.38	19.05	17.40

\* 120XX applies to WPA-1; 121XX applies to WPA-2; 122XX applies to modulator.

## SECTION 14

### ATTITUDE MEASUREMENT SENSOR (AMS)

The AMS is a passive radiometric balance sensor which operates in the 14 - 16 micron IR Band. AMS Telemetry Values are shown in Table 14-1.

The AMS was launched in the OFF mode (CMD 774). It was turned ON during Orbits 5 and 17 and has been performing normally since then.

Table 14-1. AMS Telemetry Values

Func	Name	Unit	Orbits								
			6	1431	2700	3550	4001	4430	4761	5152	5595
3004	Case - Temp 1	DGC	19.23	17.71	19.25	20.05	21.70	22.97	23.27	22.41	18.81
3005	Assembly - Temp 2	DGC	19.62	18.30	19.79	20.68	22.27	23.63	24.00	23.08	19.36

# SECTION 14

## ATTITUDE MEASUREMENT SENSOR (AMS)

The AMS is a passive radiometric balance sensor which operates in the 14 - 16 micron IR Band. AMS Telemetry Values are shown in Table 14-1.

The AMS was launched in the OFF mode (CMD 774). It was turned ON during Orbits 5 and 17 and has been performing normally since then.

Table 14-1. AMS Telemetry Values

Func	Name	Unit	Orbits								
			6	1431	2700	3550	4001	4430	4761	5152	5595
3004	Case - Temp 1	DGC	19.23	17.71	19.25	20.05	21.70	22.97	23.27	22.41	18.81
3005	Assembly - Temp 2	DGC	19.62	18.30	19.79	20.68	22.27	23.63	24.00	23.08	19.36

SECTION 15  
WIDEBAND VIDEO TAPE RECORDERS (WBVTR)

The WBVTR subsystem (Recorders 1 and 2) operated satisfactorily during this report period. Minor frame sync error counts have averaged below 5 per 10 seconds.

Tables 15-1, 15-2 and 15-3 show typical telemetry values for various recorded functions and modes. Figure 15-1 shows tape usage for Recorders 1 and 2.

Table 15-1. Telemetry Values for WBVTR-1 and -2

Func	Name	Unit	Orbits								
			42/45	1525/30	2795/96	3542	4021	4381	4760	5152	5595
13022	Tape Unit Press	PSI	16.25	16.12	16.12	16.12	16.12	16.12	16.12	16.00	15.86
13023	Tape Unit Temp	DGC	16.08	13.62	15.92	15.47	15.54	16.14	16.00	16.93	12.97
13024	Elect U. Temp	DGC	18.42	12.69	15.38	13.84	14.10	14.10	14.14	15.79	11.40
13032	Limiter Volt	VPP	1.38	1.38	1.38	1.40	1.40	1.40	1.40	1.40	1.40
13034	+ 5.6 VDC Conv	VDC	5.67	5.47	5.30	5.47	5.65	5.93	5.65	5.64	5.65
13122	Tape Unit Press	PSI	17.15	17.00	17.00	17.13	17.13	17.14	17.15	17.15	17.01
13123	Tape Unit Temp	DGC	16.75	16.30	15.26	16.11	18.45	18.92	18.44	17.84	13.44
13124	Elect. U. Temp	DGC	19.62	18.07	14.79	14.62	19.41	18.34	17.44	17.33	11.95
13132	Limiter Volt	VPP	1.31	1.31	1.33	1.31	1.31	1.31	1.32	1.32	1.33
13134	+ 5.6 VDC Conv	VDC	5.42	5.27	5.70	5.51	5.53	5.54	5.74	5.61	5.27

SECTION 15  
WIDEBAND VIDEO TAPE RECORDERS (WBVTR)

The WBVTR subsystem (Recorders 1 and 2) operated satisfactorily during this report period. Minor frame sync error counts have averaged below 5 per 10 seconds.

Tables 15-1, 15-2 and 15-3 show typical telemetry values for various recorded functions and modes. Figure 15-1 shows tape usage for Recorders 1 and 2.

Table 15-1. Telemetry Values for WBVTR-1 and -2

Func	Name	Unit	Orbits								
			42/45	1525/30	2795/96	3542	4021	4381	4760	5152	5595
13022	Tape Unit Press	PSI	16.25	16.12	16.12	16.12	16.12	16.12	16.12	16.00	15.86
13023	Tape Unit Temp	DGC	16.08	13.62	15.92	15.47	15.54	16.14	16.00	16.93	12.97
13024	Elect U. Temp	DGC	18.42	12.69	15.38	13.84	14.10	14.10	14.14	15.79	11.40
13032	Limiter Volt	VPP	1.38	1.38	1.38	1.40	1.40	1.40	1.40	1.40	1.40
13034	+ 5.6 VDC Conv	VDC	5.67	5.47	5.30	5.47	5.65	5.93	5.65	5.64	5.65
13122	Tape Unit Press	PSI	17.15	17.00	17.60	17.13	17.13	17.14	17.15	17.15	17.01
13123	Tape Unit Temp	DGC	16.75	16.30	15.26	16.11	18.45	18.92	18.44	17.84	13.44
13124	Elect. U. Temp	DGC	19.62	18.07	14.79	14.62	19.41	18.34	17.44	17.33	11.95
13132	Limiter Volt	VPP	1.31	1.31	1.33	1.31	1.31	1.31	1.32	1.32	1.33
13134	+ 5.6 VDC Conv	VDC	5.42	5.27	5.70	5.51	5.53	5.54	5.74	5.61	5.27

Table 15-2. Telemetry Values for WBVTR-1

Func	Name	Units	Orbit								
			42/45	1524/25	2795/96*	3560	3903	4454	4764/75	5151/2	5546/69
13029	InputP/B Voltage	VPP									
	Record		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Playback		0.89	0.86	0.45	0.61	0.70	0.74	0.89	0.79	0.82
	Rewind		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13028	Capstan Motor 1	AMP									
	Record		0.35	0.33	0.35	0.35	0.32	0.28	0.28	0.28	0.28
	Playback		0.40	0.34	0.30	0.30	0.28	0.28	0.29	0.23	0.28
	Rewind		0.23	0.16	0.17	0.17	0.17	0.17	0.18	0.17	0.18
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13030	Headwheel Motor 1	AMP									
	Record		0.50	0.48	0.47	0.45	0.45	0.49	0.45	0.45	0.45
	Playback		0.48	0.42	0.48	0.47	0.45	0.47	0.44	0.44	0.44
	Rewind		0.41	0.37	0.40	0.38	0.37	0.38	0.36	0.37	0.37
	Standby		0.43	0.37	0.41	0.38	0.38	0.38	0.38	0.36	0.37
13031	Recorder Input I	AMP									
	Record		3.17	2.80	3.03	2.82	2.82	2.94	2.82	2.82	2.82
	Playback		3.03	2.58	3.24	2.68	2.65	2.61	2.54	2.61	2.57
	Rewind		1.60	1.42	1.64	1.42	1.40	1.37	1.37	1.37	1.37
	Standby		1.28	1.25	1.32	1.10	1.10	1.20	1.07	1.07	1.07
13033	Servo Voltage	PCT									
	Record		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Playback		49.10	49.43	49.27	49.54	49.60	49.65	49.71	49.66	49.71
	Rewind		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13026	Capstan Motor Spd	PCT									
	Record		101.64	102.82	101.64	102.23	102.23	102.23	101.64	102.23	101.64
	Playback		101.05	102.82	100.45	102.23	102.23	102.23	102.23	102.23	102.23
	Rewind		108.15	106.38	107.56	106.38	105.68	105.78	105.78	105.78	105.78
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13027	Headwheel Motor Spd	PCT									
	Record		101.13	101.13	102.18	101.13	101.13	101.13	101.13	101.13	101.13
	Playback		101.65	101.13	100.60	101.13	101.13	101.13	101.13	101.65	101.13
	Rewind		102.71	102.18	103.23	102.18	102.18	102.18	102.18	102.18	102.18
	Standby		102.71	102.18	101.65	102.70	100.60	102.70	101.65	101.65	101.65

\* WBR payloads switched in this period to MSS to WBR-1; RBV to WBR-2

Table 15-3. Telemetry Values for WBVTR-2

Func	Name	Units	Orbit								
			42/45	1530	2795/96*	3560	3903	4455	4747/75	5151/55	5546/69
13129	Input P/B Voltage	VPP									
	Record		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Playback		0.58	0.61	0.80	0.60	0.58	0.54	0.58	0.55	0.60
	Rewind		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13128	Capstan Motor 1	AMP									
	Record		0.45	0.37	0.32	0.30	0.27	0.30	0.26	0.28	0.26
	Playback		0.28	0.37	0.28	0.32	0.30	0.36	0.33	0.33	0.33
	Rewind		0.18	0.20	0.13	0.17	0.17	0.16	0.17	0.18	0.18
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13130	Headwheel Motor 1	AMP									
	Record		0.43	0.48	0.45	0.48	0.47	0.46	0.45	0.50	0.49
	Playback		0.47	0.47	0.45	0.45	0.45	0.45	0.44	0.47	0.44
	Rewind		0.40	0.41	0.40	0.38	0.40	0.40	0.38	0.41	0.39
	Standby		0.42	0.42	0.39	0.37	0.40	0.40	0.38	0.40	0.38
13131	Recorder Input 1	AMP									
	Record		2.39	2.67	2.15	2.32	2.15	2.33	2.15	2.39	2.36
	Playback		2.79	2.64	1.82	2.24	2.24	2.24	2.52	2.36	2.30
	Rewind		1.20	1.28	1.00	1.03	1.03	1.08	1.15	1.13	1.08
	Standby		1.03	1.05	0.91	0.91	0.84	0.91	0.84	0.91	0.91
13133	Servo Voltage	PCT									
	Record		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Playback		50.29	50.49	50.68	50.78	50.68	50.78	50.29	50.68	50.87
	Rewind		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13126	Capstan Motor Spd	PCT									
	Record		98.35	98.35	99.00	99.00	98.35	98.35	98.35	98.35	98.35
	Playback		96.41	97.06	99.00	97.06	97.06	97.06	97.06	97.06	97.06
	Rewind		98.35	99.00	97.70	97.70	97.70	97.06	97.70	97.70	97.06
	Standby		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13127	Headwheel Motor Spd	PCT									
	Record		104.09	104.09	103.48	104.09	103.48	103.48	103.48	104.09	104.09
	Playback		102.87	102.87	104.09	102.87	102.87	102.87	103.48	102.87	102.87
	Rewind		103.97	105.32	104.70	104.70	104.70	104.70	105.32	105.32	104.70
	Standby		104.10	105.32	104.70	105.32	102.87	103.48	105.32	105.32	105.32

\* WBR payloads switched in this period to MSS to WBR-1; RBV to WBR-2

C-3

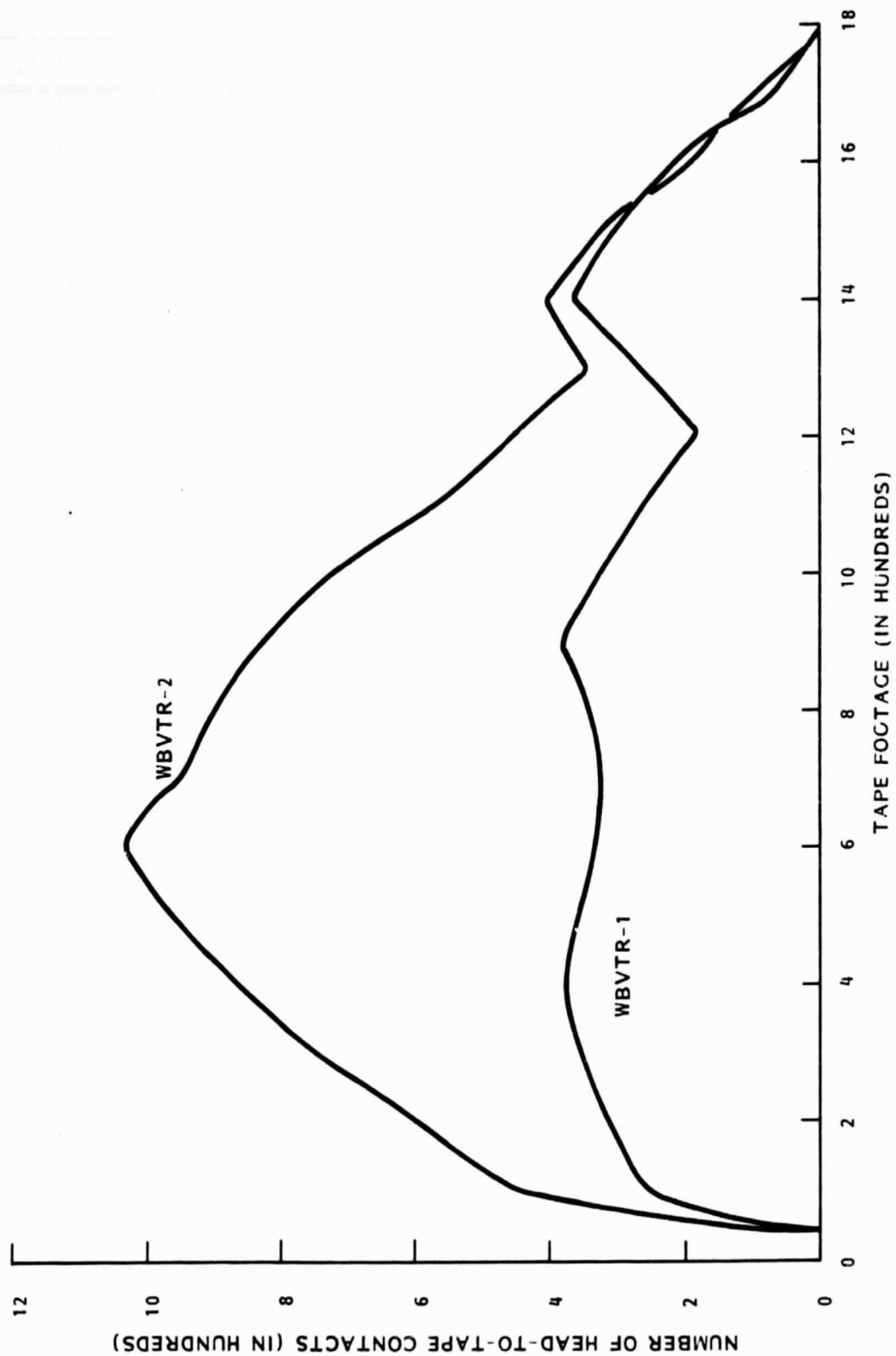


Figure 15-1. Landsat-3 WBVTR Tape Footage Thru Orbit 5927



SECTION 16  
RETURN BEAM VIDICON (RBV)

The RBV operated satisfactorily during this period.

The white-clip anomaly continues to occur occasionally in the first five percent of the image format of Camera 1. No cause has been determined to date.

RBV scenes are transmitted to Canada, Brazil, Italy, and Japan, as well as to U.S. stations.

Table 16-1 gives typical telemetry values for the RBV subsystem. Tables 16-2 and 16-3 give telemetry values for Prepare, Read and Hold modes for the two RBV Cameras.

Table 16-1. RBV Telemetry Values

Func	Name	Unit	Orbit								
			34	1525	2795	3541	3903	4430	4764	5155	5546
14001	CCC Board Temp	DGC	21.84	20.49	21.05	21.60	21.60	21.60	21.60	22.15	22.15
14002	CCC Pwr. Sup. Temp	DGC	23.39	21.60	22.15	23.81	23.26	23.26	24.91	23.81	23.81
14003	15 Vdc Sup.	TMV	4.00	4.00	4.00	4.00	3.97	3.97	3.97	3.97	3.97
14004	+6 V, -5, VDC Sup.	TMV	3.07	3.07	3.07	3.07	3.05	3.05	3.05	3.05	3.05
14100 *	VID Output V	TMV	0.83	1.10	2.17	3.20	3.20	1.35	1.92	1.15	1.80
14200			0.76	1.50	1.92	1.12	2.22	2.02	1.80	1.77	1.57
14102 *	Comb. Align Cur.	TMV	4.15	4.15	4.17	4.15	4.15	4.15	4.15	4.15	4.15
14202			4.13	4.15	4.15	4.15	4.15	4.15	4.15	4.15	4.15
14103 *	Elec Temp	DGC	19.23	18.28	18.28	20.49	20.49	20.49	19.94	19.39	21.05
14203			23.45	20.39	22.60	25.36	26.47	28.68	29.24	26.47	27.02
14104 *	LV Pwr Sup T.	DGC	19.05	18.39	17.83	21.15	21.15	21.15	21.70	20.05	22.26
14204			23.10	19.94	22.15	24.91	26.02	27.68	28.79	26.02	26.02
14105 *	Defl. Pwr. Sup. +10 VDC	TMV	4.02	4.00	4.02	4.02	4.02	4.02	4.02	4.02	4.02
14205			4.05	4.05	4.07	4.07	4.07	4.07	4.07	4.07	4.07
14106 *	L.V.P.S. +6 V, -6.3 VDC	TMV	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77	3.77
14206			3.75	3.75	3.75	3.75	3.75	3.75	3.77	3.75	3.75
14107 *	Ther. Elec. Cur.	TMV	3.02	3.52	2.70	2.72	2.72	2.75	2.72	2.72	2.80
14207			2.57	2.57	2.50	2.55	2.55	2.55	2.57	2.57	2.57
14108 *	Vid. Fil. Cur.	TMV	2.62	2.57	2.60	2.57	2.57	2.57	2.57	2.55	2.57
14208			2.38	2.62	2.65	2.57	2.60	2.57	2.57	2.57	2.57
14110 *	Vid. Tgt. Volt	TMV	3.55	3.52	3.37	3.37	3.37	3.37	3.37	3.37	3.37
14210			3.06	3.32	3.32	3.40	3.45	3.42	3.42	3.42	3.42
14113 *	Vert Def V	TMV	3.20	2.95	3.05	3.02	3.02	3.02	3.02	3.02	3.02
14213			2.78	2.97	2.95	2.95	2.95	2.95	2.95	2.95	2.95
14114 *	VID FTP	DGC	24.10	23.10	23.65	22.55	22.55	22.55	22.55	22.55	22.55
14214			23.90	22.09	22.60	21.57	21.57	21.57	21.57	21.57	21.57
14115	Foc Coil T	DGC	19.80	18.18	18.73	20.94	21.49	20.39	21.49	21.49	19.28
14215			20.00	18.18	18.73	20.94	21.49	20.94	22.05	22.05	19.83

\* 141XX refers to Camera 1; 142XX refers to Camera 2

Table 16-2. Camera No. 1 Telemetry (Values in TMV)

Func	Name	Units	Mode	Orbit								
				34	1525	2795	3541	3903	4430	4764	5155	5546
14101	Focus I	TMV	Prep	1.65	1.62	1.62	1.62	1.65	1.65	1.65	1.65	1.65
			Read	2.77	2.77	2.77	2.77	2.80	2.77	2.77	2.77	2.77
			Hold	0.55	0.52	0.55	0.55	0.55	0.52	0.52	0.52	0.55
14109	Grid V	TMV	Prep	0.70	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
			Read	2.20	2.22	2.22	2.22	2.20	2.20	2.20	2.20	2.20
			Hold	4.15	4.17	4.15	4.17	4.17	4.17	4.17	4.17	4.17
14111	Cath I	TMV	Prep	3.10	3.12	3.12	3.10	3.10	3.10	3.10	3.10	3.10
			Read	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
			Hold	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.37	0.40
14112	Hor Def	TMV	Prep	2.00	2.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02
			Read	3.42	3.45	3.47	3.45	3.45	3.45	3.45	3.45	3.45
			Hold	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
14120	+ 500 V	TMV	Prep	1.07	1.05	1.07	1.05	1.05	1.05	1.05	1.05	1.05
			Read	4.17	4.17	4.20	4.17	4.20	4.17	4.17	4.17	4.17
			Hold	4.17	4.17	4.20	4.17	4.17	4.17	4.20	4.20	4.20

Table 16-3. Camera No. 2 Telemetry (Values in TMV)

Func	Name	Units	Mode	Orbit								
				34	1525	2795	3541	3903	4453	4764	5155	5546
14201	Focus I	TMV	Prep	1.57	1.55	1.57	1.57	1.57	1.60	1.60	1.60	1.60
			Read	2.70	2.67	2.70	2.70	2.70	2.72	2.72	2.72	2.70
			Hold	0.50	0.47	0.50	0.50	0.50	0.52	0.52	0.52	0.50
14209	Grid V	TMV	Prep	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
			Read	1.90	1.92	1.92	1.90	1.90	1.90	1.90	1.90	1.90
			Hold	4.15	4.17	4.17	4.17	4.20	4.17	4.17	4.17	4.17
14211	Cath I	TMV	Prep	3.30	3.32	3.32	3.30	3.30	3.30	3.30	3.30	3.30
			Read	0.90	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
			Hold	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
14212	Hor Def	TMV	Prep	1.67	1.72	1.65	1.67	1.70	1.70	1.70	1.70	1.70
			Read	3.45	3.05	3.05	3.02	3.02	3.02	3.02	3.02	3.02
			Hold	0.00	0.02	0.05	0.00	0.00	0.00	0.00	0.00	0.00
14220	+ 500 V	TMV	Prep	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
			Read	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.22	4.25
			Hold	4.25	4.25	4.25	4.25	4.25	4.25	4.22	4.22	4.22

## SECTION 17

### MULTISPECTRAL SCANNER SUBSYSTEM (MSS)

The MSS was non-operational at the end of this report period because of an investigation into a line-start anomaly. The anomaly, previously reported, reappeared in mid-March, 1979, and reached a level of severity sufficient to disrupt image processing. A cool-down performance test of the MSS was conducted but no abatement in the anomaly was observed. The redundant light emitting diode of the Scan Monitor was substituted resulting in no improvement. Tests with single and multiple band operations in sunlight, darkness, and the transition region were being conducted at the end of this report period.

Table 17-1 shows typical telemetry values since launch. All are nominal. The cal lamp current (function 15054) shows a drop in value during Orbit 5595, when Band 5 was OFF. This telemetry point changes value slightly with different configurations, possibly sensitive to ground currents. The actual current thru the cal lamp is believed to remain stable and normal, as determined by cal wedge analysis.

Figure 17-1A and 1B show the number of scenes imaged at each geographic location this quarter. Figure 17-1A shows the scenes taken during the north-to south passage. Figure 17-1B shows the scenes taken during the south-to-north passage (the night side of the earth) by the IR Sensors of Band 5. Antarctica is at the top of Figure 17-1B, and the northernmost latitudes are at the bottom.

Figure 17-2A and 2B similarly show the number of scenes imaged at each geographic location since launch. Only those scenes received by the U.S. ground stations are shown in Figures 17-1 and 2. Scenes transmitted (63% of total) to Canada, Brazil, Iran, Japan and Italy are not shown.

Figures 17-3 to 17-10 show the history of sensor responsivity to stimuli from six (6) selected points on the Cal wedge. Two (2) typical sensors from each of Bands 1 thru 4 are shown. They are all taken in the Prime-low gain-compressed mode. Values shown with triangles were taken in high gain. The 6% rise on GMT Day 310 and the 12% drop on GMT Day 344, present on all sensors, is being studied. There now appears to be a recovery trend from the 12% drop.

Band 5 is now in its 17th outgas cycle. No video is seen from Sensor 25. Sensor 26 has operated nominally, but with gradually declining sensor responsivity. Table 17-2 shows the history of the gain of this sensor.

Table 17-1. MSS Analog Telemetry - Landsat 3

Func	Name	Units	Orbit								
			50	1521	2721	3552	4001	4430	4761	5152	5595
15021	Band 5 15V	TMV	F	4.80	F	4.76	4.75	4.75	4.75	4.75	F
15022	Band 5 PA Case Temp	DGC	11.15	13.80	14.27	15.68	17.16	17.63	16.92	16.28	12.28
15025	Ch 25 Bias	TMV	F	3.67	Q	Q	Q	Q	Q	Q	Q
15026	Ch 26 Bias	TMV	F	3.61	F	3.67	3.68	3.70	3.55	3.55	3.55
15040	Mux -6 V	VDC	6.19	6.17	6.18	6.18	6.18	6.18	6.19	6.19	6.18
15041	A/D Conv Ref. Voltage	VDC	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
15042	Avg Den Data Trans	TMV	1.92	2.13	2.06	2.04	2.20	2.15	1.94	2.17	2.31
15043	Fiber Opt Plate 1 Temp	DGC	13.92	15.31	16.70	17.59	19.09	19.57	19.25	18.62	14.20
15044	Fiber Opt Plate 2 Temp	DGC	12.66	13.59	14.62	15.55	17.18	17.70	17.23	16.57	12.41
15045	Multiplexer Temp	DGC	18.37	17.29	17.87	19.76	21.05	21.74	19.66	18.88	17.67
15046	Elect. Cover Temp	DGC	14.23	17.99	18.81	19.92	21.40	21.97	20.90	20.12	14.73
15047	Power Supply Temp	DGC	14.31	15.70	16.77	17.99	19.76	20.44	19.20	18.25	14.55
15048	Scan Mirror Reg Temp	DGC	12.61	13.77	15.17	16.32	18.16	19.05	17.70	16.74	13.54
15049	Scan Mirror Drive Elect. T.	DGC	12.94	14.45	15.76	16.95	18.99	19.91	18.21	17.13	14.19
15050	Scan Mirror Drive Coil T	DGC	12.69	13.85	15.27	16.30	18.14	19.04	17.98	17.02	13.65
15051	Scan Mirror Temp	DGC	12.25	13.16	14.73	15.75	17.45	18.40	17.45	16.60	12.98
15052	Rot Sht Hsg Temp	DGC	13.93	15.11	16.40	17.28	18.78	19.28	18.81	18.19	13.80
15053	Scan Mirror Reg Volt	VDC	24.02	23.34	23.35	23.34	23.35	23.34	23.22	23.38	23.33
15054	Cal Lamp Current	mA	112.50	112.56	112.50	112.50	112.50	112.50	112.62	112.50	110.05
15055	BD 1 15V	TMV	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.07	5.08
15056	BD 2 15 V	TMV	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05
15057	BD 3 15 V	TMV	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10	5.10
15058	BD 4 15 V	TMV	5.02	5.02	5.02	5.02	5.01	5.02	5.02	5.02	5.03
15059	TLM -15 V	VDC	-15.17	-15.17	-15.17	-15.17	-15.17	-15.17	-15.17	-15.17	-15.17
15060	SM Reg +12 V/-6 V	TMV	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
15061	Logic +5 V	TMV	4.87	4.87	4.85	4.87	4.87	4.87	4.87	4.87	4.86
15062	+19 V Rect Out	TMV	5.90	5.89	6.02	5.90	5.90	5.90	5.90	5.89	6.00
15063	-19 V Rect Out	TMV	4.30	4.22	4.31	4.22	4.22	4.22	4.22	4.22	4.30
15064	BD 1 HVA	TMV	5.00	5.00	5.02	5.02	5.02	5.02	5.02	5.02	5.00
15065	BD 1 HVB	TMV	F	F	F	F	F	F	F	F	F
15066	BD 2 HVA	TMV	5.04	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05
15067	BD 3 HVB	TMV	F	F	F	F	F	F	F	F	F
15068	BD 3 HVA	TMV	5.00	5.02	5.02	5.02	5.02	5.02	5.02	5.02	5.02
15069	BD 3 HVB	TMV	F	F	F	F	F	F	F	F	F
15070	Shtr Mtr Con. Int.	TMV	2.55	2.54	2.53	2.54	2.53	2.53	2.54	2.54	2.55
15071	Scan Mirror Drive	VDC	-7.95	-7.99	-8.01	-8.01	-8.02	-8.02	-8.01	-8.01	-8.02
15080	RAD Cool 1st Stg T	DGC	F	-112.60	-112.63	-111.97	-111.81	112.22	-112.69	-112.97	-112.75
15081	RAD Cool 2nd Stg W T	DGC	F	-181.00	-181.00	-181.00	-181.00	-118.00	-181.00	-181.00	-181.00
15082	RAD Cool 2nd Stg N T	DGC	F	-180.52	-180.89	-180.60	-180.47	-180.18	-180.66	-180.68	-180.70

F = Unit Off

Q = Unit Failure

Table 17-2. Gain for Sensors Measured Immediately After Cooldown  
and Normalized to Gain Step 6

Date	After Outgas Cycle	Orbit	Sens. 25	Sens. 26	Comment
1978:					
3-21	1	222	42.72	39.54	
4-3	2	403	(38.95)	(35.66)	36 hours after Cooldown
4-17	3	598	42.45	39.17	
5-3	4	821	(40.11)	(37.42)	2 hours after Cooldown
5-25	5	1120	40.23	38.14	
6-19	6	1476	35.47	34.61	
7-12	7	1790	Q	33.57	
8-11	8	2215	Q	32.63	
9-8	9	2606	Q	31.16	
10-13	10	3095	Q	31.18	
11-9	11	3471	Q	29.67	
12-7	12	3861	Q	28.11	
1979:					
1-2	13	4224	Q	27.45	
1-29	14	4600	Q	27.32	
2-23	15	4949	Q	26.81	
3-19	16	5283	Q	26.78	

Q = Sensor Failed





62	11114555	21
63	115	333
64	445	22
65	84	11
66	83	11
67	84	11
68	28	11
69	111	11
70	111 444	11
71	1111 3334	11
72	222133334	11
73	111133334411	11
74	11113333444	11
75	111133334444	11
76	111133334444	11
77	111222333422	11
78	33334444444	11
79	333344444555	11
80	223344444555	11
81	2222223334	11
82	1 3333333344	11
83	1 11222433334	11
84	11222122222333	11
85	22334444441	11
86	11222333221	11
87	11222111	11
88	33444338	11
89	22221111	11
90	22331111	11
91	2341122	11
92	1 222341	11
93	111	11
94	111	11
95	1111	11
96	11	11
97	11	11
98	11	11
99	11	11
100	11	11
101	11	11
102	11	11
103	11	11
104	11	11
105	11	11
106	11	11
107	11	11
108	11	11
109	11	11
110	11	11
111	11	11
112	11	11
113	11	11
114	11	11
115	11	11
116	11	11
117	11	11
118	11	11
119	11	11
120	11	11
121	11	11
122	11	11
123	11	11
124	11	11
125	11	11
126	11	11
127	11	11
128	11	11
129	11	11
130	11	11
131	11	11
132	11	11
133	11	11
134	11	11
135	11	11
136	11	11
137	11	11
138	11	11
139	11	11
140	11	11
141	11	11
142	11	11
143	11	11
144	11	11



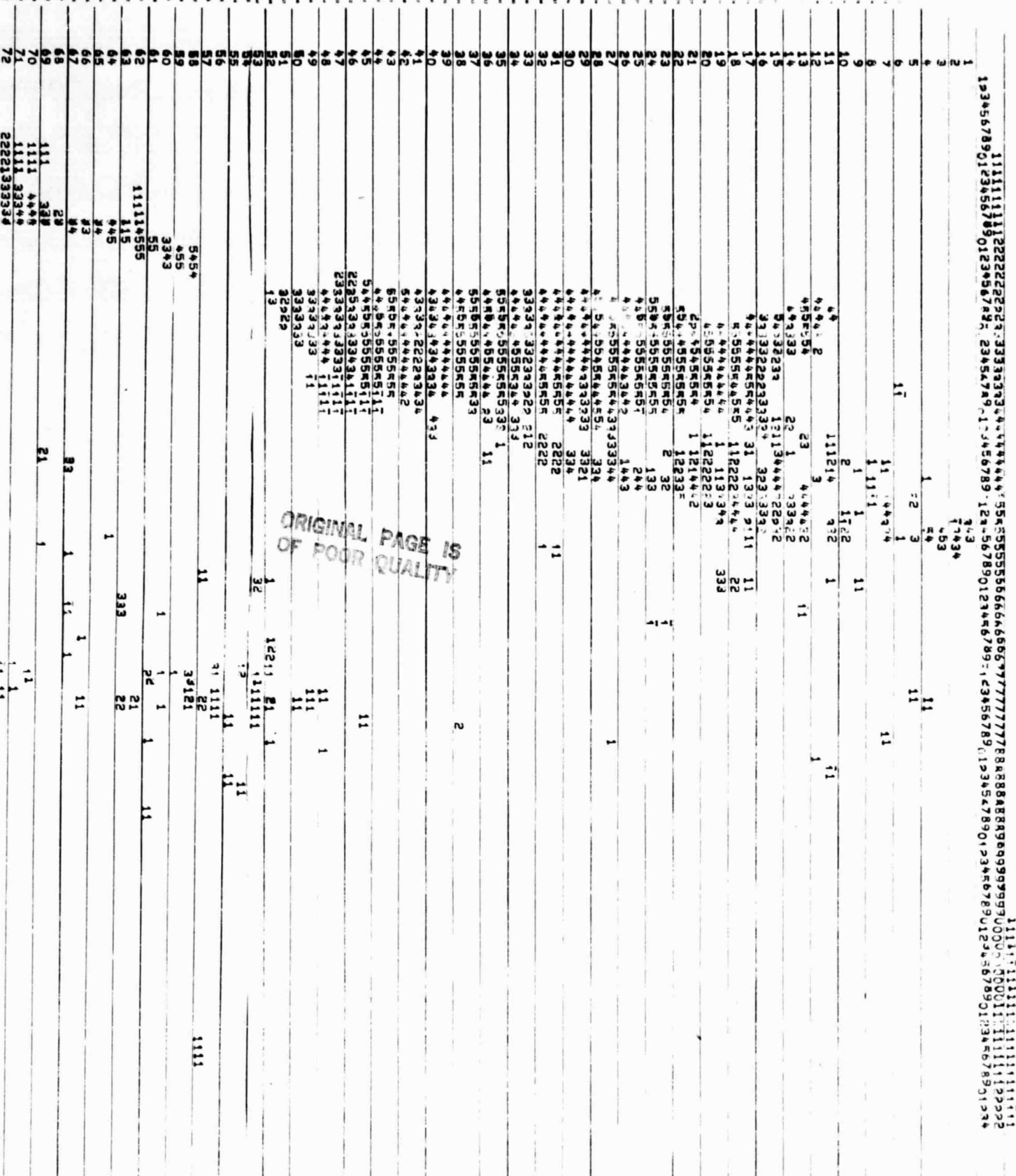


Figure 17-1A. MSS Scenes in N-S Passages  
This Quarter - Landsat-3  
Cycles 18-22

1067006

202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231  
232  
233  
234  
235  
236  
237  
238  
239  
240  
241  
242  
243  
244  
245  
246  
247  
248  
249  
250  
251

ORIGINAL PAGE IS  
OF POOR QUALITY

EDLDOU FRAME

067906

1067905

149  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215  
216  
217  
218  
219  
220  
221  
222  
223  
224  
225  
226  
227  
228  
229  
230  
231

BOLDOUT FRAME

2

	I M A G E		A C Q U I S I T I O N		P R O C E S S I N G	
	REQ'D	SCHED	VITA	SLAT	GAIN	SAU
TOTAL:	21682	8314	7505	7477	3308	585
	100.00%	38.35%	34.61%	34.44%	15.24%	2.10%

	I M A G E ? Y				A V A I L A B L E					
n	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
15	638	122	343	72	65	430	64	68	128	1222

1067003

1067002

LANDSAT 3

IMAGE ACQUISITION					
EOID	SCHED	VITA	SLAT	GRND	SAD
1682	8314	750b	7447	330R	085
0.00%	38.35%	34.61%	34.40%	15.24%	2.16%
AVAILABLE					
30%	40%	50%	60%	70%	80%
343	79	65	430	64	68
					128
					1222

Figure 17-1B. MSS Scenes in S-N Passages  
(Night) This Quarter Landsat-3  
Cycles 18-22

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484	1485	1486	1487	1488</
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	--------



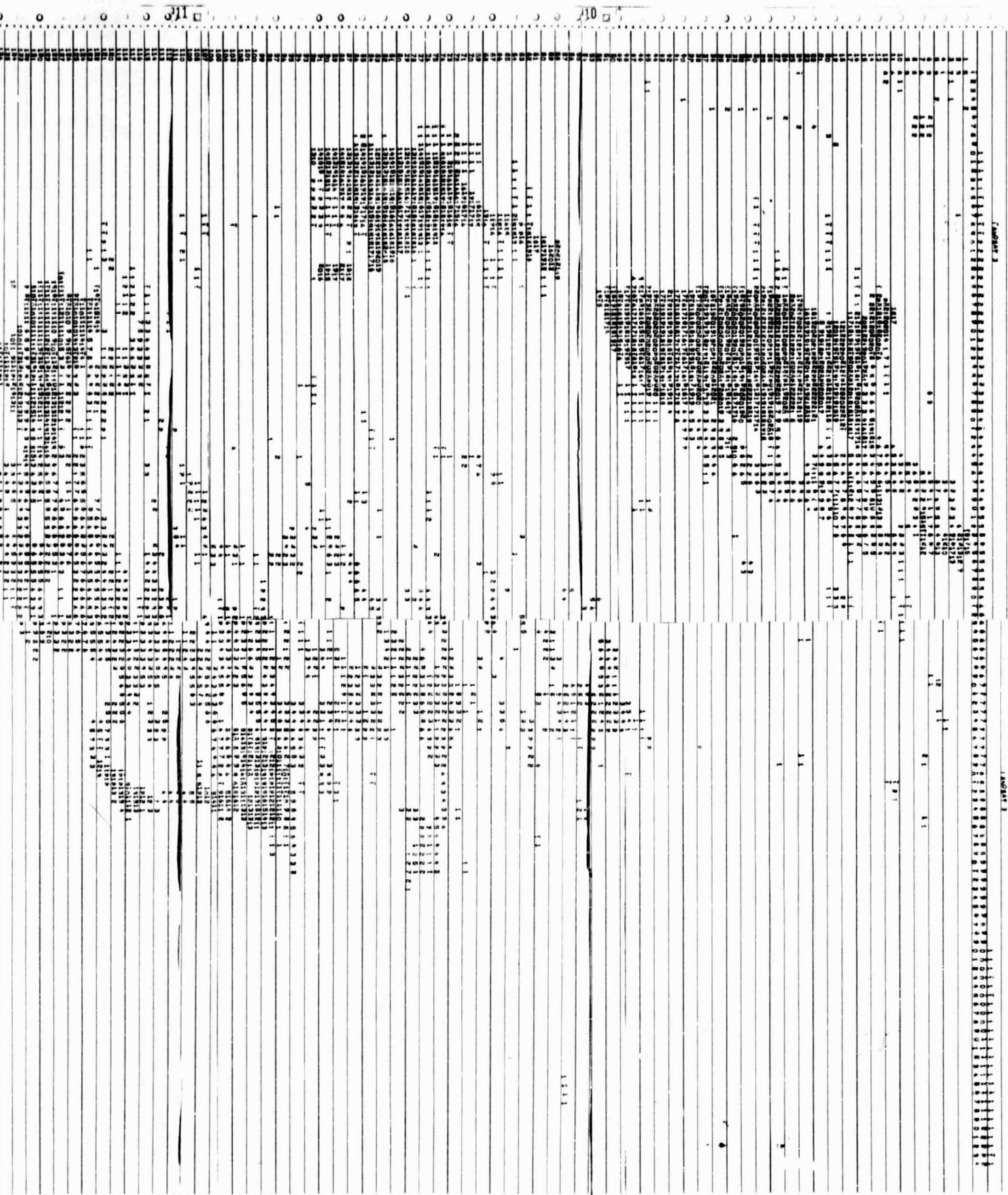


Figure 17-2A. Map of MSS Scenes in N-S  
Passages (Daylight) Since Launch  
Landsat-3 Cycles 1-22

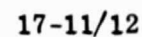
FOLDOUT FRAME 2

1 - Bonded copy

FOLDOUT ~~XXXXXX~~

ORIGINAL PAGE IS  
OF POOR QUALITY





Δ = HIGH GAIN DATA POINT

2

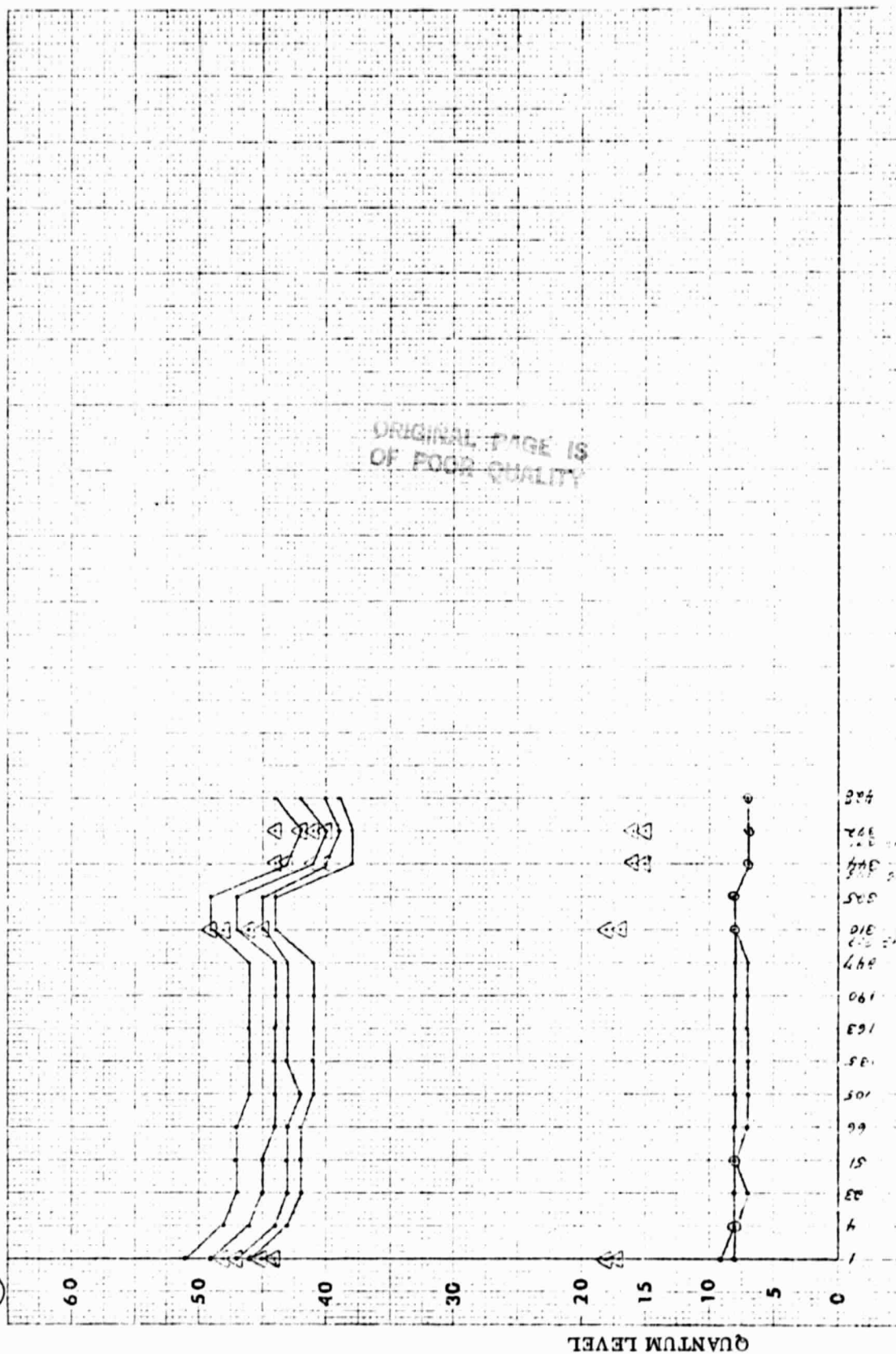


Figure 17-3. Landsat-3 Sensor 2 Response to Six Positions in the Cal Wedge

FLIGHT DAY

Δ = HIGH GAIN DATA POINT

⑥

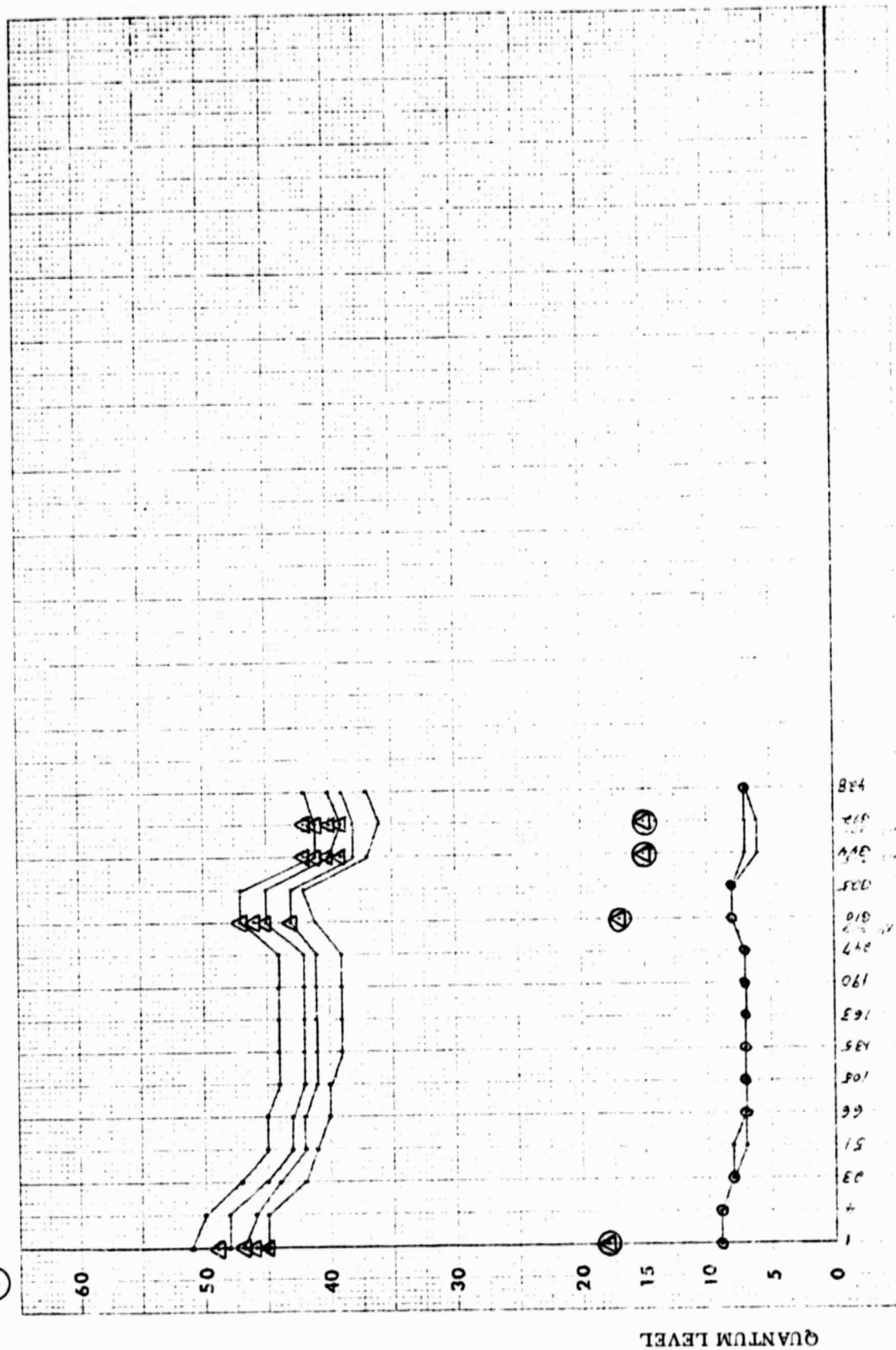


Figure 17-4. Landsat-3 Sensor 6 Response to Six Positions in the Cal Wedge

FLIGHT DAY

Δ = HIGH GAIN DATA POINT

8

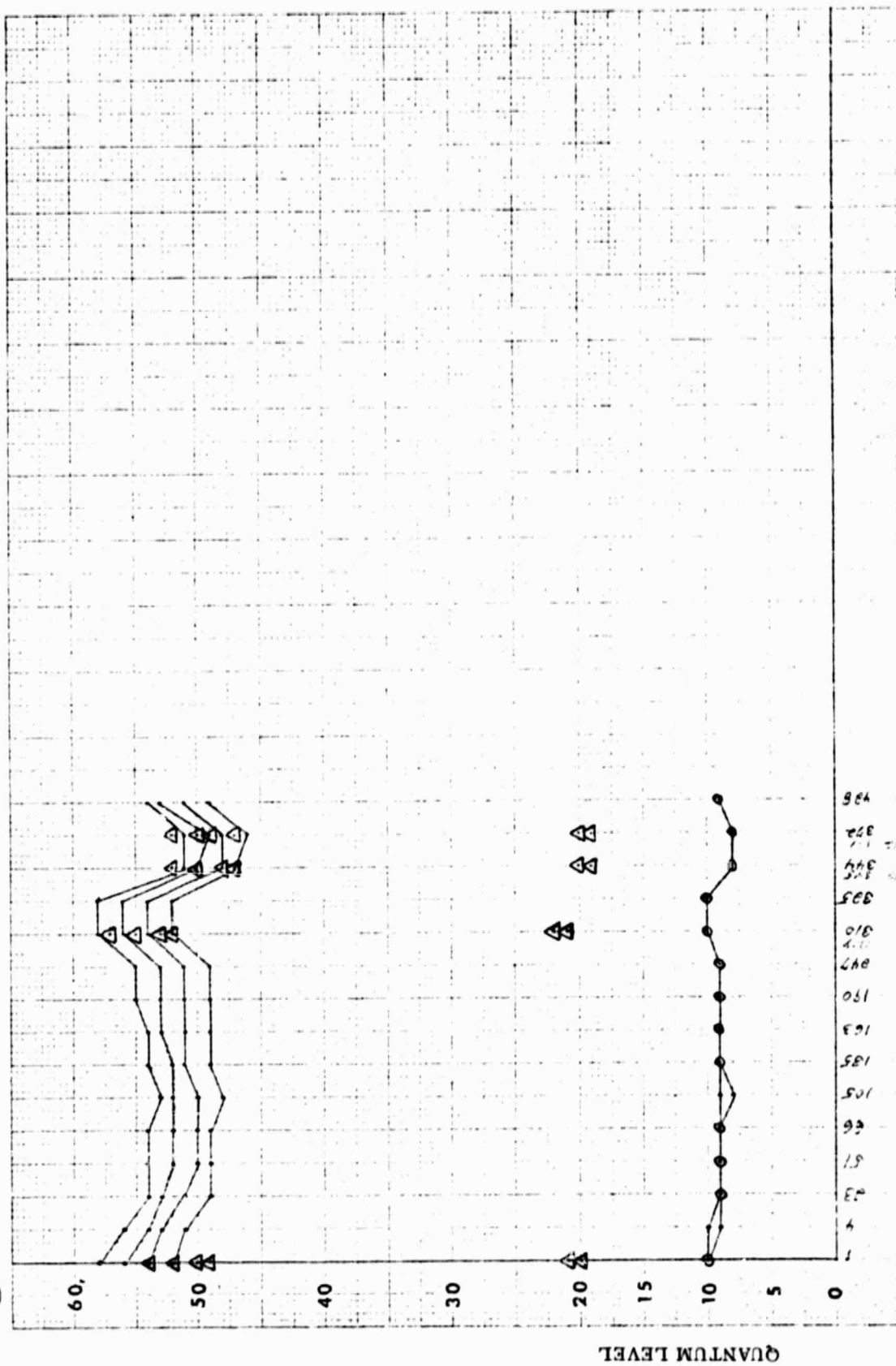
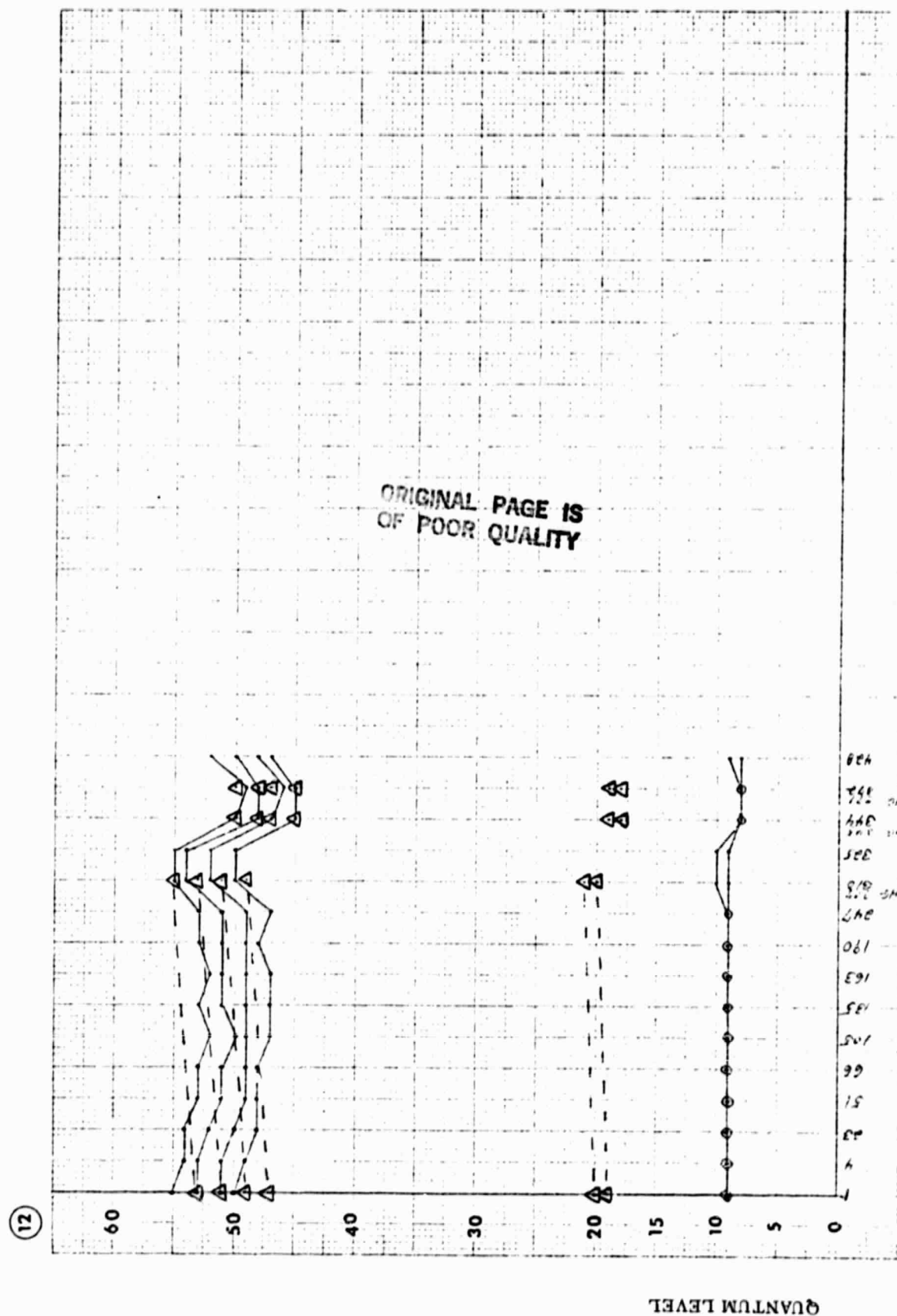


Figure 17-5. Landsat-3 Sensor 8 Response to Six Positions in the Cal Wedge

FLIGHT DAY

ORIGINAL PAGE IS  
OF POOR QUALITY



**Figure 17-6. Landsat-3 Sensor 12 Response to Six Positions in the Cal Wedge**

## FLIGHT DAY

(13)

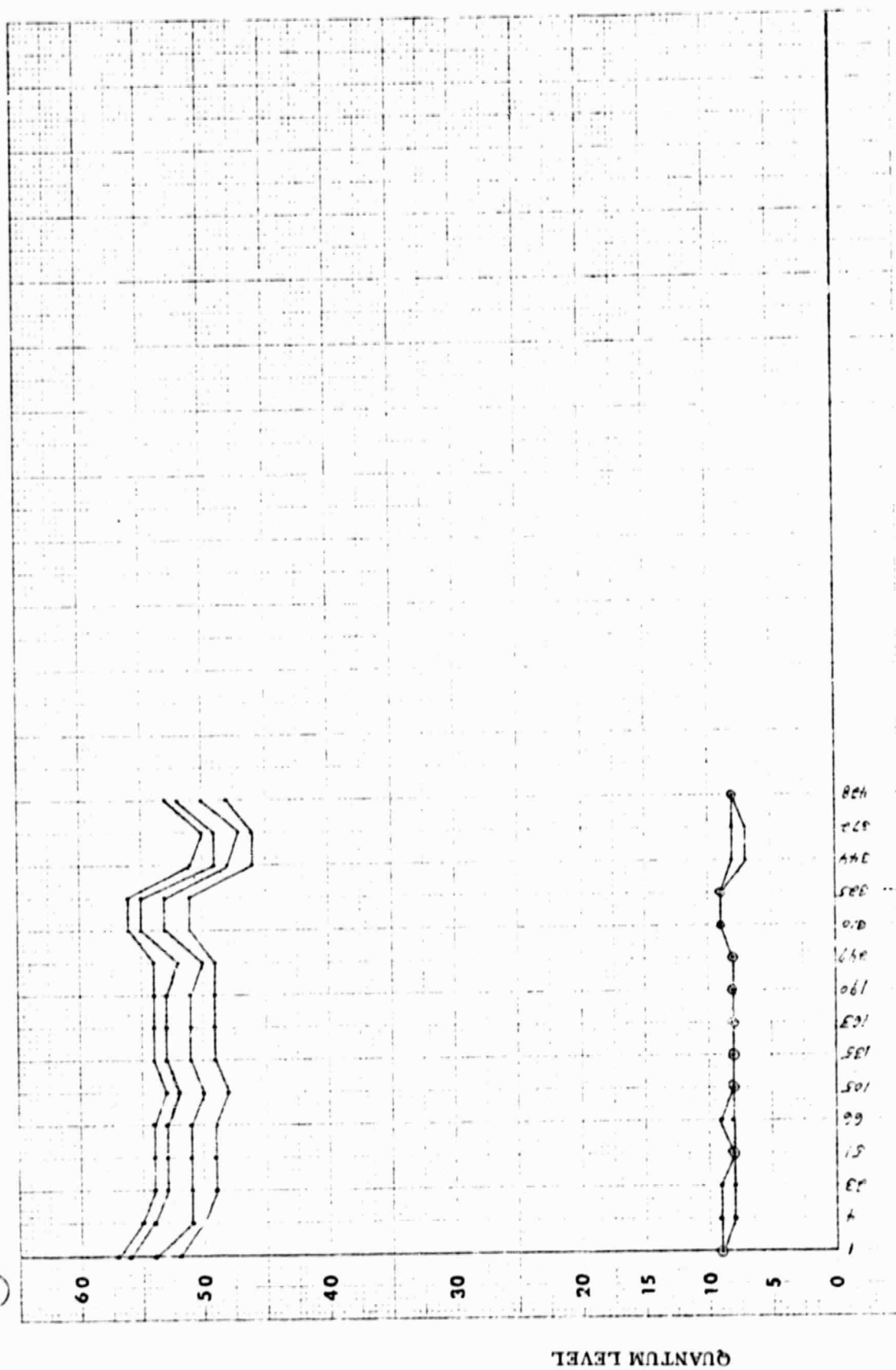


Figure 17-7. Landsat-3 Sensor 13 Response to Six Positions in the Cal Wedge

FLIGHT DAY

17

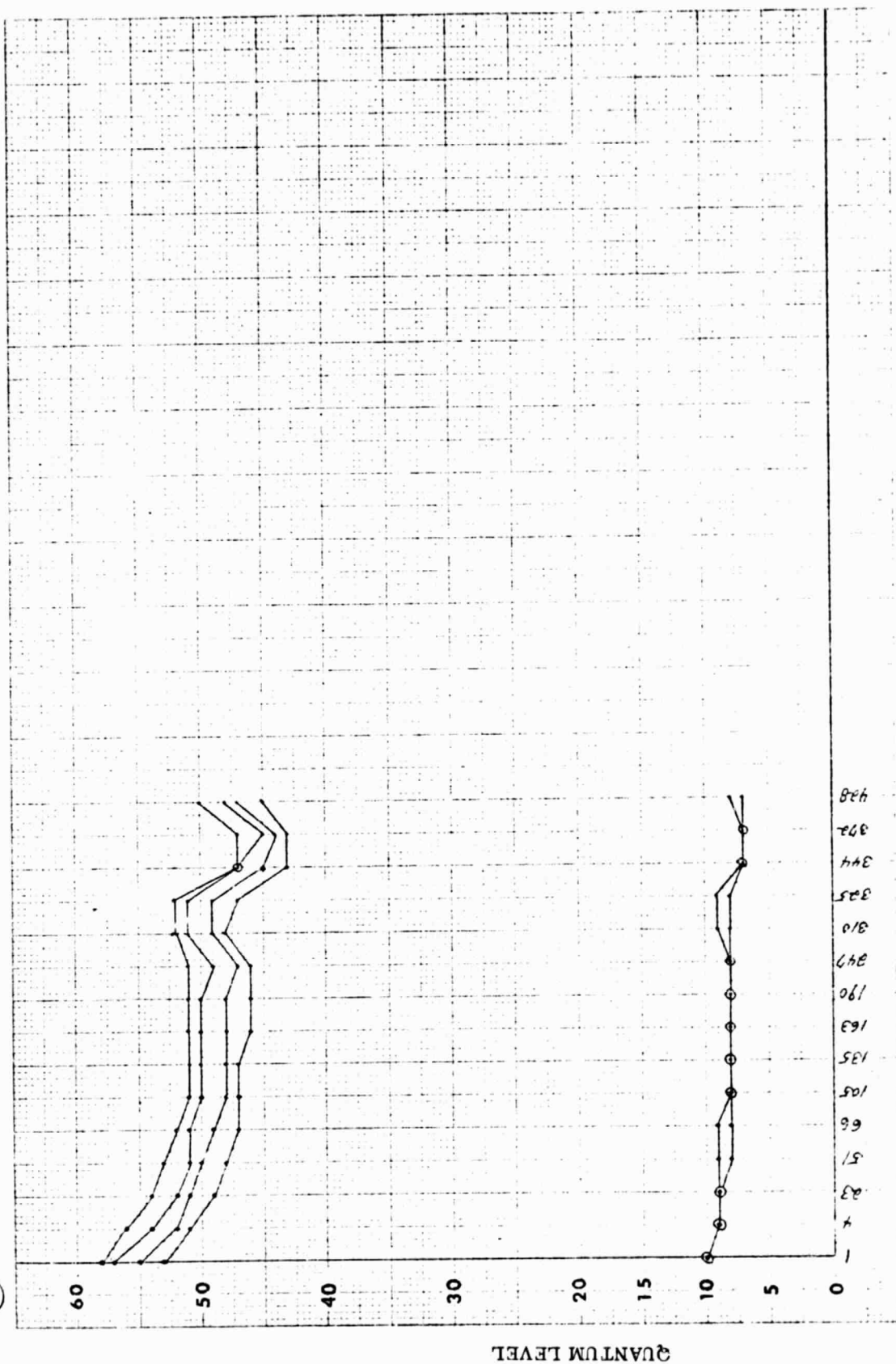


Figure 17-8. Landsat-3 Sensor 17 Response to Six Positions in the Cal Wedge

FLIGHT DAY

QUANTUM LEVEL



22

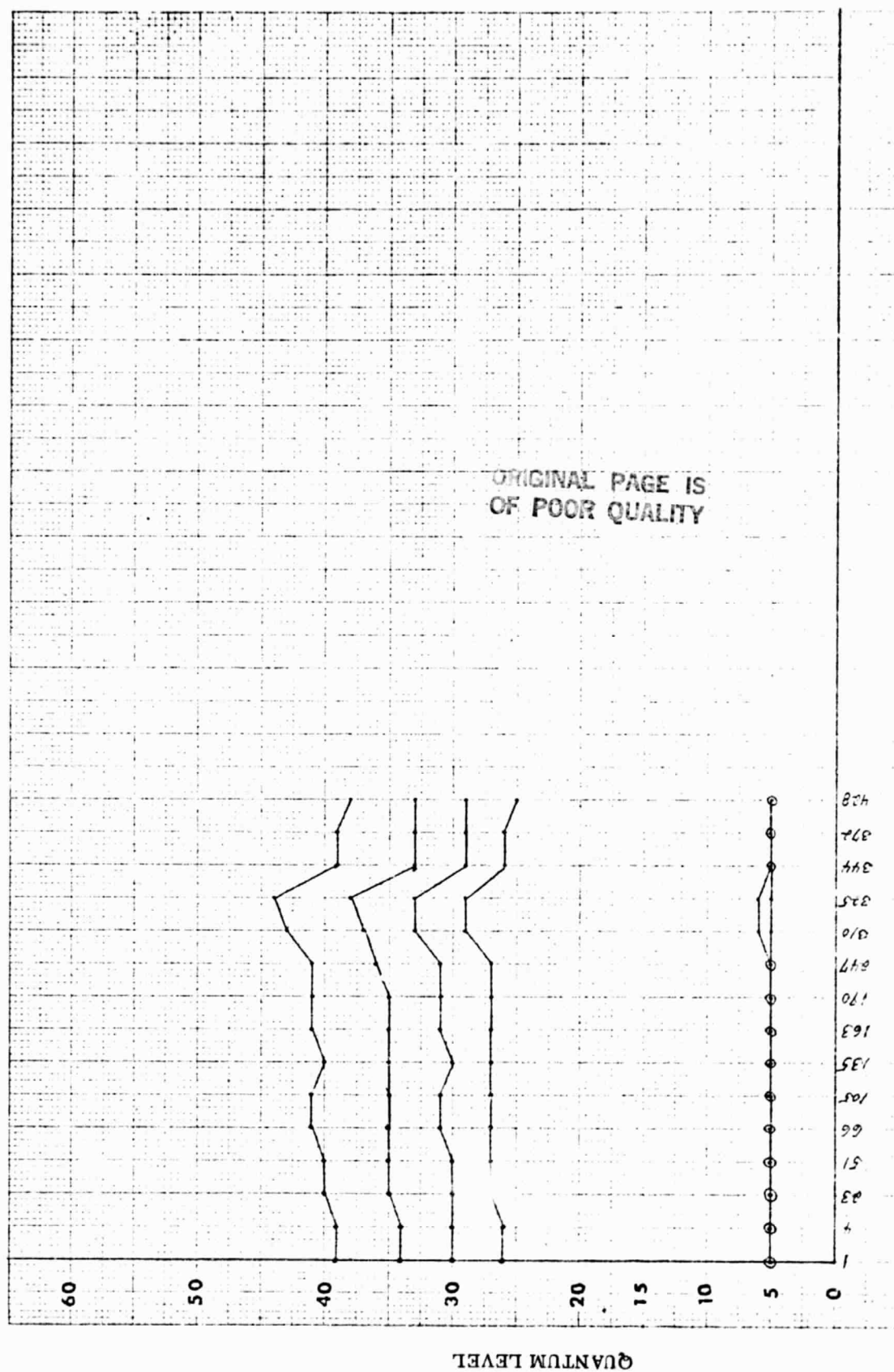


Figure 17-9. Landsat-3 Sensor 22 Response to Six Positions in the Cal Wedge

FLIGHT DAY



(24)

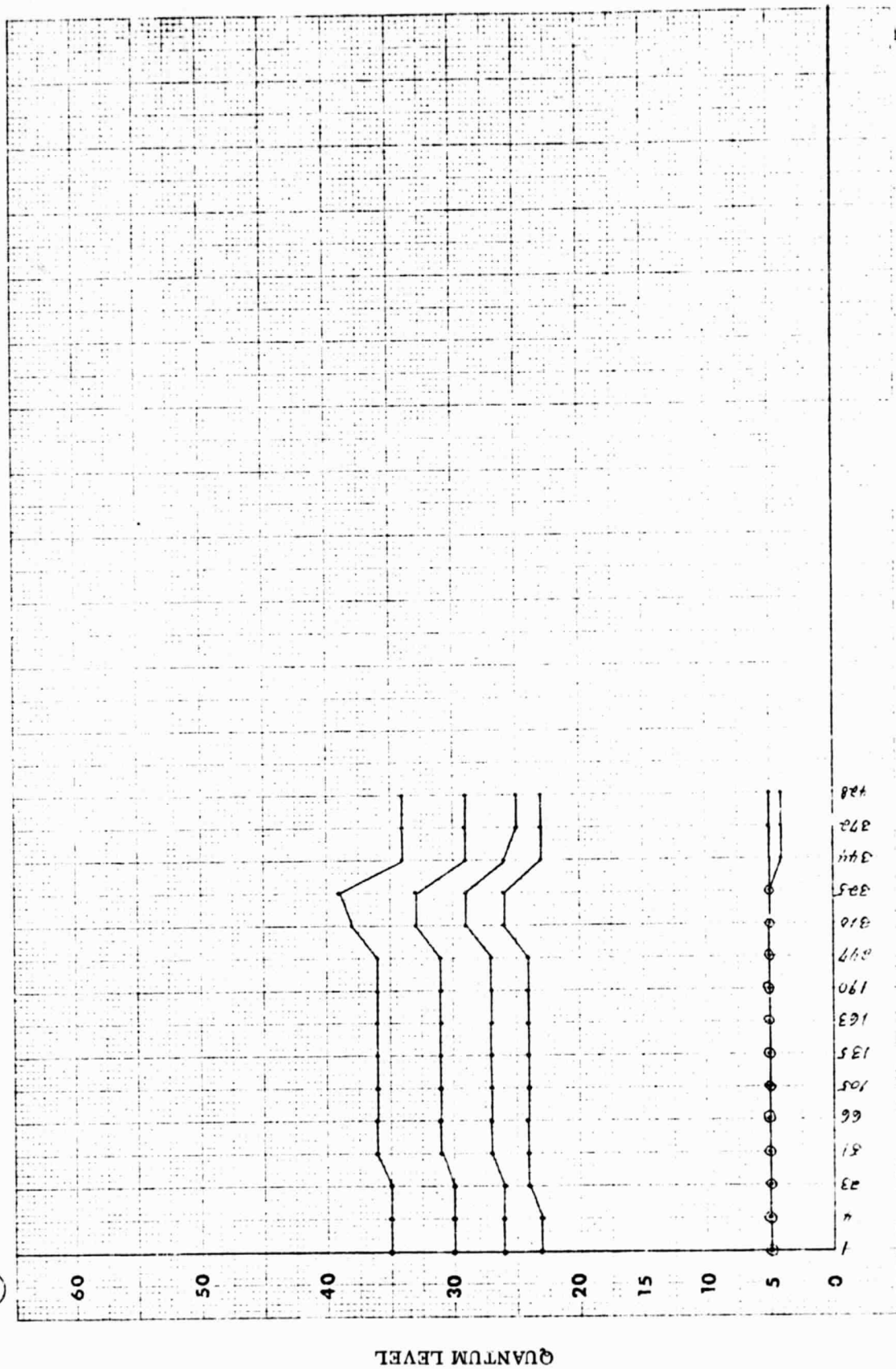


Figure 17-10. Landsat-3 Sensor 24 Response to Six Positions in the Cal Wedge

SECTION 18  
DATA COLLECTION SUBSYSTEM (DCS)

The DCS Subsystem performed nominally during this report period.

Figure 18-1 shows the number of DCS messages received in each 18-day cycle at OCC. The percentage of good messages is about 95%.

There are 35 users in the data base; 235 DCP's are in the data base.

Table 18-1 shows telemetry values since launch. All are nominal.

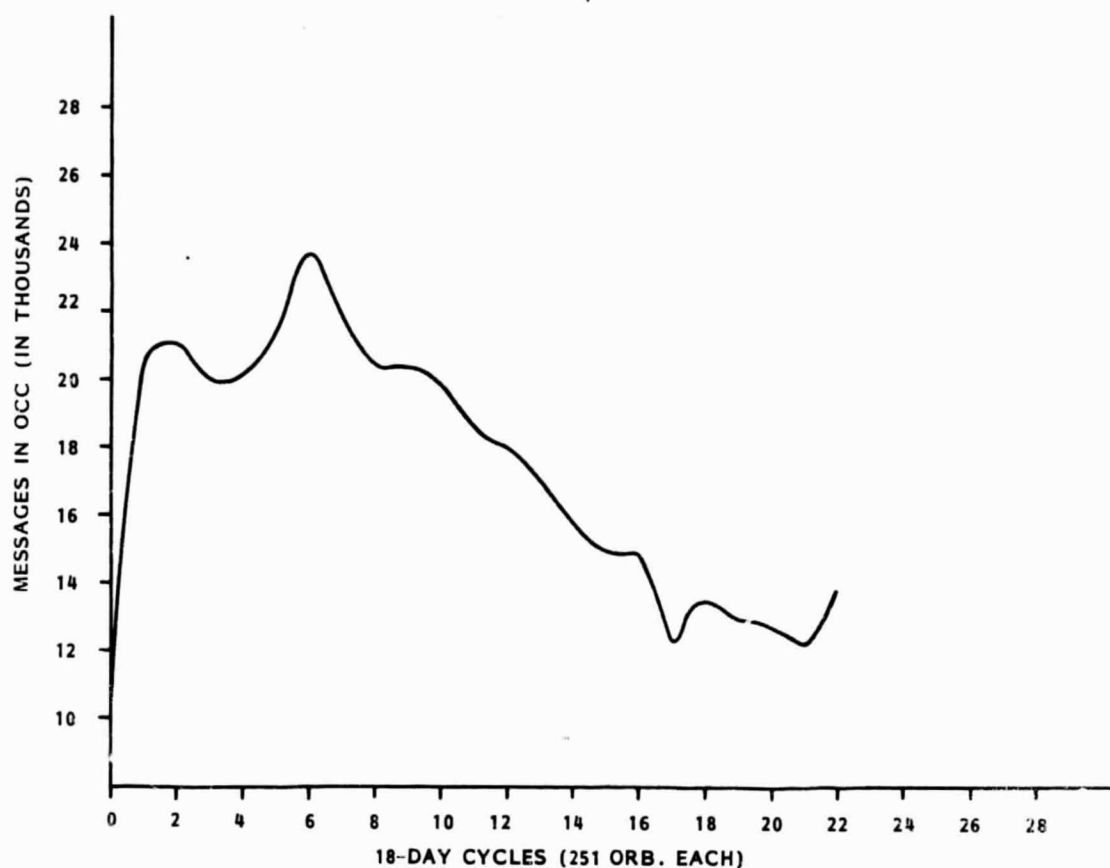


Figure 18-1. Landsat-3 Number of DCS Messages for Each 18-Day Cycle

Table 18-1. DCS Telemetry Values

Func	Name	Units	Orbit								
			43	1521	2721	3552	4001	4430	4761	5152	5595
16001	Receiver 1 Sig Strength	dBm	-125.00	-127.21	-123.45	-125.31	-128.11	-124.80	-128.18	-130.01	-128.07
16002	Receiver 1 Temp	DGC	19.05	19.00	20.17	20.95	21.68	21.64	22.14	22.09	19.66
16003	Rec-1 Pwr Input Volt	VDC	2.35	2.34	2.35	2.35	2.36	2.36	2.37	2.37	2.34
16004	Receiver 2 Sig Strength	dBm	F	F	F	F	F	F	F	F	F
16005	Receiver 2 Temp.	DGC	F	F	F	F	F	F	F	F	F
16006	Receiver 2 Input Volt	VDC	F	F	F	F	F	F	F	F	F

F = Unit Off

## APPENDIX A

## LANDSAT-3 ANOMALIES AND

<u>Date</u>	<u>Anomaly/Observation</u>	<u>How Observed</u>	
3/8/78	Cell 4 of B Cor .stor would not verify. MDR D04942	On-Line	Cell 4 of when all operation
3/9/78	RBV had intermittent white level saturation in first 5% of image. MDR D04939	Off-Line	White lev
4/3/78	Sensor responsivity was observed to be successively lower at first turn-on after each outgas cycle.	Off-Line	Study bel taminatio
5/4/78	ECAM halted on checksum. MDR D04941	On-Line	ECAM ha changed changed
7/11/78	No output from sensor 25 video on MSS Band 5. MDR D04943	On-Line	First op 1-4 norm
7/16/78	SMART #6 analog WBVTR-1 EOT detection fired while in monitor mode (Orbit 1857)	On-Line	Variable normal c
7/19/78	SMART #4 and 5 digital EOT detection for WBVTR-1 and WBVTR-2 fired in Orbit 1897.	On-Line	Operatio matic sh
7/24/78	SMART #2 fired due to WBVTR-1 high headwheel current (HWI) in Orbit 1971	On-Line	Subsequ reset.
8/27/78	Intermittent delayed line start pulse on MSS. MDR D04944	Off-Line	Delayed visible v scan co built up
11/4/78	SMART #7 analog WBVTR-2 EOT detection fired while in monitor mode (Orbit 3465)	On-Line	Variable normal
11/17/78	SMART #1 fired due to low unregulated voltage in Orbit (3576)	On-Line	Simultan bus volt reset an Reoccur program normal c
12/6/78	MSS False End-of-Line Codes	Off-Line	Occasion extra 4 incident

X A

## AND OBSERVATIONS

### Comments

of B Comstor would not load properly in Orbits 41, 45 and 48. Operational use discontinued on 3/18/78. All "1's" appeared in cell 4. Tested and operation resumed in Orbit 1897 on 19 July 1978 with cell 4 non-functional.

level saturation occurred in first 5% of images at intermittent occurrence.

being made to determine if responsivity decline due to sensor deterioration or to non-water vapor contamination.

halted on internal check on Orbit 839 (5 May 1978). Memory fault not critical and stable. Checksum failed and operation continued. Reoccurred at new non-critical memory location on 31 May 1978. Checksum failed and returned to operation.

operation after 7th outgas cycle showed no output from sensor 25. Sensor 26 operated nominally. Bands normal.

ble end of tape (EOT) protection circuit presently set inside normal operating range and fired indicating no detection. No effect on operation as circuit is in monitor mode.

tion to end of tape caused SMART #4 and 5 circuit to fire before primary mechanical EOT switch. Auto-shutdown and inhibit of payloads occurred. Recorder returned to operation and SMART #4 and 5 reset.

quent test operation showed normal HWI and normal operation of recorder resumed. SMART #2 was

ed line start generated by mux after apparent miss of scan monitor pulse No. 1. Mid scan code not visible when commanded on. Switched to scan monitor light source B. Anomaly not seen in this mode. Mid scan code still not visible when commanded on. Anomaly absent October 1978 to January 1979. Occurrences peaked up to a peak in late March 1979 and then subsided.

ble end of tape (EOT) protection circuit presently set inside normal operating range and fired indicating no detection. No effect on operation as circuit is in monitor mode.

aneous MSS and RBV playbacks during spacecraft night discharged the batteries until the unregulated voltage reached -26.5 volts. The SMART triggered and shut down payload operation. The SMART #1 was reset and normal operation resumed. Mission planning instructed to prohibit dual simultaneous P/B at night. Recurred in Orbit 3939 (12/13/78) during night playback due to low power caused by power management program error which has been corrected. Recurred in orbit 5639 (13 April 1979). SMART #1 was reset and normal operation resumed.

sional extra scan monitor pulses occurring in preamble or along video data cause early line starts or 4 black and 4 white (End-of-Line Code) pixels in scene data. Occurs over magnetic anomalies with low scan rate; i.e., Brazil, Africa. Operation continued.

2

APPENDIX B

LANDSAT-3

SPACECRAFT ORBIT REFERENCE TABLES

FROM 1 OCTOBER 1978 THROUGH 31 JANUARY 1980

ORBITS 2919 to 9723

FLIGHT DAY 210 THROUGH 697

NOTE: The "Flight Day" origin for Landsat-3 (5 March 1978) is revised from Day 1 to Day 0 beginning this report. All flight days are shifted one day (i.e. Flight day 210 was Flight day 211).

Landsat-3  
October 1978

Date	GMT Day	Flight *	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	274	210	2919-2932	29- 42	3	12
2	275	211	2933-2946	43- 56	4	12
3	276	212	2947-2960	57- 70	5	12
4	277	213	2961-2974	71- 84	6	12
5	278	214	2975-2988	85- 98	7	12
6	279	215	2989-3002	99-112	8	12
7	280	216	3003-3016	113-126	9	12
8	281	217	3017-3029	127-139	10	12
9	282	218	3030-3043	140-153	11	12
10	283	219	3044-3057	154-167	12	12
11	284	220	3058-3071	168-181	13	12
12	285	221	3072-3085	182-195	14	12
13	286	222	3086-3099	196-209	15	12
14	287	223	3100-3113	210-223	16	12
15	288	224	3114-3127	224-237	17	12
16	289	225	3128-3141	238-251	18	12
17	290	226	3142-3155	1- 14	1	13
18	291	227	3156-3169	15- 28	2	13
19	292	228	3170-3183	29- 42	3	13
20	293	229	3184-3197	43- 56	4	13
21	294	230	3198-3211	57- 70	5	13
22	295	231	3212-3225	71- 84	6	13
23	296	232	3226-3239	85- 98	7	13
24	297	233	3240-3253	99-112	8	13
25	298	234	3254-3267	113-126	9	13
26	299	235	3268-3280	127-139	10	13
27	300	236	3281-3294	140-153	11	13
28	301	237	3295-3308	154-167	12	13
29	302	238	3309-3322	168-181	13	13
30	303	239	3323-3336	182-195	14	13
31	304	240	3337-3350	196-209	15	13

\* The "Flight Day" origin for Landsat 3 (5 March 1978) is revised from day 1 to day 0 beginning this report. (i.e. Flight day 210 was Flight day 211).

Landsat-3  
November 1978

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	305	241	3351-3364	210-223	16	13
2	306	242	3365-3378	224-237	17	13
3	307	243	3379-3392	230-251	18	13
4	308	244	3393-3406	1- 14	1	14
5	309	245	3407-3420	15- 28	2	14
6	310	246	3421-3434	29- 42	3	14
7	311	247	3435-3448	43- 56	4	14
8	312	248	3449-3462	57- 70	5	14
9	313	249	3463-3476	71- 84	6	14
10	314	250	3477-3490	85- 98	7	14
11	315	251	3491-3504	99-112	8	14
12	317	252	3505-3518	113-126	9	14
13	317	253	3519-3531	127-139	10	14
14	318	254	3532-3545	140-153	11	14
15	319	255	3546-3559	154-167	12	14
16	320	256	3560-3573	168-181	13	14
17	321	257	3574-3587	182-195	14	14
18	322	258	3588-3601	196-209	15	14
19	323	259	3602-3615	210-223	16	14
20	324	260	3616-3629	224-237	17	14
21	325	261	3630-3643	238-251	18	14
22	326	262	3644-3657	1- 14	1	15
23	327	263	3658-3671	15- 28	2	15
24	328	264	3672-3685	29- 42	3	15
25	329	265	3686-3699	43- 56	4	15
26	330	266	3700-3713	57- 70	5	15
27	331	267	3714-3727	71- 84	6	15
28	332	268	3728-3741	85- 98	7	15
29	333	269	3742-3755	99-112	8	15
30	334	270	3756-3769	113-126	9	15

\* Revised, i.e. Day 241 was Day 242, etc.



Landsat-3  
December 1978

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	335	271	3770-3782	127-139	10	15
2	336	272	3783-3796	140-153	11	15
3	337	273	3797-3810	154-167	12	15
4	338	274	3811-3824	168-181	13	15
5	339	275	3825-3838	182-195	14	15
6	340	276	3839-3852	196-209	15	15
7	341	277	3853-3866	210-223	16	15
8	342	278	3867-3880	224-237	17	15
9	343	279	3881-3894	238-251	18	15
10	344	280	3895-3908	1- 14	1	16
11	345	281	3909-3922	15- 28	2	16
12	346	282	3923-3936	29- 42	3	16
13	347	283	3937-3950	43- 56	4	16
14	348	284	3951-3964	57- 70	5	16
15	349	285	3965-3978	71- 84	6	16
16	350	286	3979-3992	85- 98	7	16
17	351	287	3993-4006	99-112	8	16
18	352	288	4007-4020	113-126	9	16
19	353	289	4021-4033	127-139	10	16
20	354	290	4034-4047	140-153	11	16
21	355	291	4048-4061	154-167	12	16
22	356	292	4062-4075	168-181	13	16
23	357	293	4076-4089	182-195	14	16
24	358	294	4090-4103	196-209	15	16
25	359	295	4104-4117	210-223	16	16
26	360	296	4118-4131	224-237	17	16
27	361	297	4132-4145	238-251	18	16
28	362	298	4146-4159	1- 14	1	17
29	363	299	4160-4173	15- 28	2	17
30	364	300	4174-4187	29- 42	3	17
31	365	301	4188-4201	43- 56	4	17

\* Revised, i. e. Day 271 was Day 272, etc.

Landsat-3  
January 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	1	302	4202-4215	57- 70	5	17
2	2	303	4216-4229	71- 84	6	17
3	3	304	4230-4243	85- 98	7	17
4	4	305	4244-4257	99-112	8	17
5	5	306	4258-4271	113-126	9	17
6	6	307	4272-4284	127-139	10	17
7	7	308	4285-4298	140-153	11	17
8	8	309	4299-4312	154-167	12	17
9	9	310	4313-4326	168-181	13	17
10	10	311	4327-4340	182-195	14	17
11	11	312	4341-4354	196-209	15	17
12	12	313	4355-4368	210-223	16	17
13	13	314	4369-4382	224-237	17	17
14	14	315	4383-4396	238-251	18	17
15	15	316	4397-4410	1- 14	1	18
16	16	317	4411-4424	15- 28	2	18
17	17	318	4425-4438	29- 42	3	18
18	18	319	4439-4452	43- 56	4	18
19	19	320	4453-4466	57- 70	5	18
20	20	321	4467-4480	71- 84	6	18
21	21	322	4481-4494	85- 98	7	18
22	22	323	4495-4508	99-112	8	18
23	23	324	4509-4522	113-126	9	18
24	24	325	4523-4535	127-139	10	18
25	25	326	4536-4549	140-153	11	18
26	26	327	4550-4563	154-167	12	18
27	27	328	4564-4577	168-181	13	18
28	28	329	4578-4591	182-195	14	18
29	29	330	4592-4605	196-209	15	18
30	30	331	4606-4619	210-223	16	18
31	31	332	4620-4633	224-237	17	18

\* Revised, i.e. Day 302 was Day 303, etc.

Landsat-3  
February 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	32	333	4634-4647	238-251	18	18
2	33	334	4648-4661	1- 14	1	19
3	34	335	4662-4675	15- 28	2	19
4	35	336	4676-4689	29- 42	3	19
5	36	337	4690-4703	43- 56	4	19
6	37	338	4704-4717	57- 70	5	19
7	38	339	4718-4731	71- 84	6	19
8	39	340	4732-4745	85- 98	7	19
9	40	341	4746-4759	99-112	8	19
10	41	342	4760-4773	113-126	9	19
11	42	343	4774-4786	127-139	10	19
12	43	344	4787-4800	140-153	11	19
13	44	345	4801-4814	154-167	12	19
14	45	346	4815-4828	168-181	13	19
15	46	347	4829-4842	182-195	14	19
16	47	348	4843-4856	196-209	15	19
17	48	349	4857-4870	210-223	16	19
18	49	350	4871-4884	224-237	17	19
19	50	351	4885-4898	238-251	18	19
20	51	352	4899-4912	1- 14	1	20
21	52	353	4913-4926	15- 28	2	20
22	53	354	4927-4940	29- 42	3	20
23	54	355	4941-4954	43- 56	4	20
24	55	356	4955-4968	57- 70	5	20
25	56	357	4969-4982	71- 84	6	20
26	57	358	4983-4996	85- 98	7	20
27	58	359	4997-5010	99-112	8	20
28	59	360	5011-5024	113-126	9	20

\* Revised, i. e. Day 333 was Day 334, etc.

Landsat-3  
March 1979

Date	GMT Day	Flight * Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	60	361	5025-5037	127-139	10	20
2	61	362	5038-5051	140-153	11	20
3	62	363	5052-5065	154-167	12	20
4	63	364	5066-5079	168-181	13	20
5	64	365	5080-5093	182-195	14	20
6	65	366	5094-5107	196-209	15	20
7	66	367	5108-5121	210-223	16	20
8	67	368	5122-5135	224-237	17	20
9	68	369	5136-5149	238-251	18	20
10	69	370	5150-5163	1- 14	1	21
11	70	371	5164-5177	15- 28	2	21
12	71	372	5178-5191	29- 42	3	21
13	72	373	5192-5205	43- 56	4	21
14	73	374	5206-5219	57- 70	5	21
15	74	375	5220-5233	71- 84	6	21
16	75	376	5234-5247	85- 98	7	21
17	76	377	5248-5261	99-112	8	21
18	77	378	5262-5275	113-126	9	21
19	78	379	5276-5288	127-139	10	21
20	79	380	5289-5302	140-153	11	21
21	80	381	5303-5316	154-167	12	21
22	81	382	5317-5330	168-181	13	21
23	82	383	5331-5344	182-195	14	21
24	83	384	5345-5358	196-209	15	21
25	84	385	5359-5372	210-223	16	21
26	85	386	5373-5386	224-237	17	21
27	86	387	5387-5400	238-251	18	21
28	87	388	5401-5414	1- 14	1	22
29	88	389	5415-5428	15- 28	2	22
30	89	390	5429-5442	29- 42	3	22
31	90	391	5443-5456	43- 56	4	22

\* Revised, i.e. Day 361 was Day 362, etc.

# Landsat-3

April 1979

Date	GMT Day	Flight * Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	91	392	5457-5470	57- 70	5	22
2	92	393	5471-5484	71- 84	6	22
3	93	394	5485-5498	85- 98	7	22
4	94	395	5499-5512	99-112	8	22
5	95	396	5513-5526	113-126	9	22
6	96	397	5527-5539	127-139	10	22
7	97	398	5540-5553	140-153	11	22
8	98	399	5554-5567	154-167	12	22
9	99	400	5568-5581	168-181	13	22
10	100	401	5582-5595	182-195	14	22
11	101	402	5596-5609	196-209	15	22
12	102	403	5610-5623	210-223	16	22
13	103	404	5624-5637	224-237	17	22
14	104	405	5638-5651	238-251	18	22
15	105	406	5652-5665	1- 14	1	23
16	106	407	5666-5679	15- 28	2	23
17	107	408	5680-5693	29- 42	3	23
18	108	409	5694-5707	43- 56	4	23
19	109	410	5708-5721	57- 70	5	23
20	110	411	5722-5735	71- 84	6	23
21	111	412	5736-5749	85- 98	7	23
22	112	413	5750-5763	99-112	8	23
23	113	414	5764-5777	113-126	9	23
24	114	415	5778-5790	127-139	10	23
25	115	416	5791-5804	140-153	11	23
26	116	417	5805-5818	154-167	12	23
27	117	418	5819-5832	168-181	13	23
28	118	419	5833-5846	182-195	14	23
29	119	420	5847-5860	196-209	15	23
30	120	421	5861-5874	210-223	16	23

\* Revised, i.e. Day 392 was Day 393, etc.

Landsat-3

May 1979

Date	GMT Day	Flight * Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	121	422	5875-5888	224-237	17	23
2	122	423	5889-5902	238-251	18	23
3	123	424	5903-5916	1- 14	1	24
4	123	425	5917-5930	15- 28	2	24
5	125	426	5931-5944	29- 42	3	24
6	126	427	5945-5958	43- 56	4	24
7	127	428	5959-5972	57- 70	5	24
8	128	429	5973-5986	71- 84	6	24
9	129	430	5987-6000	85- 98	7	24
10	130	431	6001-6014	99-112	8	24
11	131	432	6015-6028	113-126	9	24
12	132	433	6029-6041	127-139	10	24
13	133	434	6042-6055	140-153	11	24
14	134	435	6056-6069	154-167	12	24
15	135	436	6070-6083	168-181	13	24
16	136	437	6084-6097	182-195	14	24
17	137	438	6098-6111	196-209	15	24
18	138	439	6112-6125	210-223	16	24
19	139	440	6126-6139	224-237	17	24
20	140	441	6140-6153	238-251	18	24
21	141	442	6154-6167	1- 14	1	25
22	142	443	6168-6181	15- 28	2	25
23	143	444	6182-6195	29- 42	3	25
24	144	445	6196-6209	43- 56	4	25
25	145	446	6210-6223	57- 70	5	25
26	146	447	6224-6237	71- 84	6	25
27	147	448	6238-6251	85- 98	7	25
28	148	449	6252-6265	99-112	8	25
29	149	450	6266-6279	113-126	9	25
30	150	451	6280-6292	127-139	10	25
31	151	452	6293-6306	140-153	11	25

\* Revised, i. e. Day 422 was Day 423, etc.

# Landsat-3

June 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	152	453	6307-6320	154-167	12	25
2	153	454	6321-6334	168-181	13	25
3	154	455	6335-6348	182-195	14	25
4	155	456	6349-6362	196-209	15	25
5	156	457	6363-6376	210-223	16	25
6	157	458	6377-6390	224-237	17	25
7	158	459	6391-6404	238-261	18	25
8	159	460	6405-6418	1- 14	1	26
9	160	461	6419-6432	15- 28	2	26
10	161	462	6433-6446	29- 42	3	26
11	162	463	6447-6460	43- 56	4	26
12	163	464	6461-6474	57- 70	5	26
13	164	465	6475-6488	71- 84	6	26
14	165	466	6489-6502	85- 98	7	26
15	166	467	6503-6516	99-112	8	26
16	167	468	6517-6530	113-126	9	26
17	168	469	6531-6543	127-139	10	26
18	169	470	6544-6557	140-153	11	26
19	170	471	6558-6571	154-167	12	26
20	171	472	6572-6585	168-181	13	26
21	172	473	6586-6599	182-195	14	26
22	173	474	6600-6613	196-209	15	26
23	174	475	6614-6627	210-223	16	26
24	175	476	6628-6641	224-237	17	26
25	176	477	6642-6655	238-251	18	26
26	177	478	6656-6669	1- 14	1	27
27	178	479	6670-6683	15- 28	2	27
28	179	480	6684-6697	29- 42	3	27
29	180	481	6698-6711	43- 56	4	27
30	181	482	6712-6725	57- 70	5	27

\* Revised, i.e. Day 453 was Day 454, etc.

## Landsat-3

July 1979

Date	GMT Day	Flight * Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	182	483	6726-6739	71- 84	6	27
2	183	484	6740-6753	85- 98	7	27
3	184	485	6754-6767	99-112	8	27
4	185	486	6768-6781	113-126	9	27
5	186	487	6782-6794	127-139	10	27
6	187	488	6795-6808	140-153	11	27
7	188	489	6809-6822	154-167	12	27
8	189	490	6823-6836	168-181	13	27
9	190	491	6837-6850	182-195	14	27
10	191	492	6851-6864	196-209	15	27
11	192	493	6865-6878	210-223	16	27
12	193	494	6879-6892	224-237	17	27
13	194	495	6893-6906	238-251	18	27
14	195	496	6907-6920	1- 14	1	28
15	196	497	6921-6934	15- 28	2	28
16	197	498	6935-6948	29- 42	3	28
17	198	499	6949-6962	43- 56	4	28
18	199	500	6963-6976	57- 70	5	28
19	200	501	6977-6990	71- 84	6	28
20	201	502	6991-7004	85- 98	7	28
21	202	503	7005-7018	99-112	8	28
22	203	504	7019-7032	113-126	9	28
23	204	505	7033-7045	127-139	10	28
24	205	506	7046-7059	140-153	11	28
25	206	507	7060-7073	154-167	12	28
26	207	508	7074-7087	168-181	13	28
27	208	509	7088-7101	182-195	14	28
28	209	510	7102-7115	196-209	15	28
29	210	511	7116-7129	210-223	16	28
30	211	512	7130-7143	224-237	17	28
31	212	513	7144-7157	238-251	18	28

\* Revised, i.e. Day 483 was Day 484, etc.



Landsat-3

August 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	213	514	7158-7171	1-14	1	29
2	214	515	7172-7185	15-28	2	29
3	215	516	7186-7199	29-42	3	29
4	216	517	7200-7213	43-56	4	29
5	217	518	7214-7227	57-70	5	29
6	218	519	7228-7241	71-84	6	29
7	219	520	7242-7255	85-98	7	29
8	220	521	7256-7269	99-112	8	29
9	221	522	7270-7283	113-126	9	29
10	222	523	7284-7296	127-139	10	29
11	223	524	7297-7310	140-153	11	29
12	224	525	7311-7324	154-167	12	29
13	225	526	7325-7338	168-181	13	29
14	226	527	7339-7352	182-195	14	29
15	227	528	7353-7366	196-209	15	29
16	228	529	7367-7380	210-223	16	29
17	229	530	7381-7394	224-237	17	29
18	230	531	7395-7408	238-251	18	29
19	231	532	7409-7422	1-14	1	30
20	232	533	7423-7436	15-28	2	30
21	233	534	7437-7450	29-42	3	30
22	234	535	7451-7464	43-56	4	30
23	235	536	7465-7478	57-70	5	30
24	236	537	7479-7492	71-84	6	30
25	237	538	7493-7506	85-98	7	30
26	238	539	7507-7520	99-112	8	30
27	239	540	7521-7534	113-126	9	30
28	240	541	7535-7547	127-139	10	30
29	241	542	7548-7561	140-153	11	30
30	242	543	7562-7575	154-167	12	30
31	243	544	7576-7589	168-181	13	30

\*Revised, i. e. Day 514 was Day 515, etc.

# Landsat-3

September 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	244	545	7590-7603	182-195	14	30
2	245	546	7604-7617	196-209	15	30
3	246	547	7618-7631	210-223	16	30
4	247	548	7632-7645	224-237	17	30
5	248	549	7646-7659	238-251	18	30
6	249	550	7660-7673	1-14	1	31
7	250	551	7674-7687	15-28	2	31
8	251	552	7688-7701	29-42	3	31
9	252	553	7702-7715	43-56	4	31
10	253	554	7716-7729	57-70	5	31
11	254	555	7730-7743	71-84	6	31
12	255	556	7744-7757	85-98	7	31
13	256	557	7758-7771	99-112	8	31
14	257	558	7772-7785	113-126	9	31
15	258	559	7786-7798	127-139	10	31
16	259	560	7799-7812	140-153	11	31
17	260	561	7813-7826	154-167	12	31
18	261	562	7827-7840	168-181	13	31
19	262	563	7841-7854	182-195	14	31
20	263	564	7855-7868	196-209	15	31
21	264	565	7869-7882	210-223	16	31
22	265	566	7883-7896	224-237	17	31
23	266	567	7897-7910	238-251	18	31
24	267	568	7911-7924	1-14	1	32
25	268	569	7925-7938	15-28	2	32
26	269	570	7939-7952	29-42	3	32
27	270	571	7953-7966	43-56	4	32
28	271	572	7967-7980	57-70	5	32
29	272	573	7981-7994	71-84	6	32
30	273	574	7995-8008	85-98	7	32

\*Revised, i. e. Day 545 was Day 546, etc.

Landsat-3

October 1979

Date	GMT Day	Flight * Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	274	575	8009-8022	99-112	8	32
2	275	576	8023-8036	113-126	9	32
3	276	577	8037-8049	127-139	10	32
4	277	578	8050-8063	140-153	11	32
5	278	579	8064-8077	154-167	12	32
6	279	580	8078-8091	168-181	13	32
7	280	581	8092-8105	182-195	14	32
8	281	582	8106-8119	196-209	15	32
9	282	583	8120-8133	210-223	16	32
10	283	584	8134-8147	224-237	17	32
11	284	585	8148-8161	238-251	18	32
12	285	586	8162-8175	1-14	1	33
13	286	587	8176-8189	15-28	2	33
14	287	588	8190-8203	29-42	3	33
15	288	589	8204-8217	43-56	4	33
16	289	590	8218-8231	57-70	5	33
17	290	591	8232-8245	71-84	6	33
18	291	592	8246-8259	85-98	7	33
19	292	593	8260-8273	99-112	8	33
20	293	594	8274-8287	113-126	9	33
21	294	595	8288-8300	127-139	10	33
22	295	596	8301-8314	140-153	11	33
23	296	597	8315-8328	154-167	12	33
24	297	598	8329-8342	168-181	13	33
25	298	599	8343-8356	182-195	14	33
26	299	600	8357-8370	196-209	15	33
27	300	601	8371-8384	210-223	16	33
28	301	602	8385-8398	224-237	17	33
29	302	603	8399-8412	238-251	18	33
30	303	604	8413-8426	1-14	1	34
31	304	605	8427-8440	15-28	2	34

\*Revised, i. e. Day 575 was Day 576, etc.

Landsat-3

November 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	305	606	8441-8454	29- 42	3	34
2	306	607	8455-8468	43- 56	4	34
3	307	608	8469-8482	57- 70	5	34
4	308	609	8483-8496	71- 84	6	34
5	309	610	8497-8510	85- 98	7	34
6	310	611	8511-8524	99-112	8	34
7	311	612	8525-8538	113-126	9	34
8	312	613	8539-8551	127-139	10	34
9	313	614	8552-8565	140-153	11	34
10	314	615	8566-8579	154-167	12	34
11	315	616	8580-8593	168-181	13	34
12	316	617	8594-8607	182-195	14	34
13	317	618	8608-8621	196-209	15	34
14	318	619	8622-8635	210-223	16	34
15	319	620	8636-8649	224-237	17	34
16	320	621	8650-8663	238-251	18	34
17	321	622	8664-8677	1- 14	1	35
18	322	623	8678-8691	15- 28	2	35
19	323	624	8692-8705	29- 42	3	35
20	324	625	8706-8719	43- 56	4	35
21	325	626	8720-8733	57- 70	5	35
22	326	627	8734-8747	71- 84	6	35
23	327	628	8748-8761	85- 98	7	35
24	328	629	8762-8775	99-112	8	35
25	329	630	8776-8789	113-126	9	35
26	330	631	8790-8802	127-139	10	35
27	331	632	8803-8816	140-153	11	35
28	332	633	8817-8830	154-167	12	35
29	333	634	8831-8844	168-181	13	35
30	334	635	8845-8858	182-195	14	35

\* Revised, i. e. Day 606 was Day 607, etc.

# Landsat-3

December 1979

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	335	636	8859-8872	196-209	15	35
2	336	637	8873-8886	210-223	16	35
3	337	638	8887-8900	224-237	17	35
4	338	639	8901-8914	238-251	18	35
5	339	640	8915-8928	1- 14	1	36
6	340	641	8929-8942	15- 28	2	36
7	341	642	8943-8956	29- 42	3	36
8	342	643	8957-8970	43- 56	4	36
9	343	644	8971-8984	57- 70	5	36
10	344	645	8985-8998	71- 84	6	36
11	345	646	8999-9012	85- 98	7	36
12	346	647	9013-9026	99-112	8	36
13	347	648	9027-9040	113-126	9	36
14	348	649	9041-9053	127-139	10	36
15	349	650	9054-9067	140-153	11	36
16	350	651	9068-9081	154-167	12	36
17	351	652	9082-9095	168-181	13	36
18	352	653	9096-9109	182-195	14	36
19	353	654	9110-9123	196-209	15	36
20	354	655	9124-9137	210-223	16	36
21	355	656	9138-9151	224-237	17	36
22	356	657	9152-9165	238-251	18	36
23	357	658	9166-9179	1- 14	1	37
24	358	659	9180-9193	15- 28	2	37
25	359	660	9194-9207	29- 42	3	37
26	360	661	9208-9221	43- 56	4	37
27	361	662	9222-9235	57- 70	5	37
28	362	663	9236-9249	71- 84	6	37
29	363	664	9250-9263	85- 98	7	37
30	364	665	9264-9277	99-112	8	37
31	365	666	9278-9291	113-126	9	37

\* Revised, i. e. Day 636 was Day 637, etc.

Landsat-3

January 1980

Date	GMT Day	Flight* Day	Spacecraft Orbits	Cycle Orbits	Cycle Day	Cycle
1	1	667	9292-9304	127-139	10	37
2	2	668	9305-9318	140-153	11	37
3	3	669	9319-9332	154-167	12	37
4	4	670	9333-9346	168-181	13	37
5	5	671	9347-9360	182-195	14	37
6	6	672	9361-9374	196-209	15	37
7	7	673	9375-9388	210-223	16	37
8	8	674	9389-9402	224-237	17	37
9	9	675	9403-9416	238-251	18	37
10	10	676	9417-9430	1- 14	1	38
11	11	677	9431-9444	15- 28	2	38
12	12	678	9445-9458	29- 42	3	38
13	13	679	9459-9472	43- 56	4	38
14	14	680	9473-9486	57- 68	5	38
15	15	681	9487-9500	71- 84	6	38
16	16	682	9501-9514	85- 98	7	38
17	17	683	9515-9528	99-112	8	38
18	18	684	9529-9542	113-126	9	38
19	19	685	9543-9555	127-139	10	38
20	20	686	9556-9569	140-153	11	38
21	21	687	9570-9583	154-167	12	38
22	22	688	9584-9597	168-181	13	38
23	23	689	9598-9611	182-195	14	38
24	24	690	9612-9625	196-209	15	38
25	25	691	9626-9639	210-223	16	38
26	26	692	9640-9653	224-237	17	38
27	27	693	9654-9667	238-251	18	38
28	28	694	9668-9681	1- 14	1	39
29	29	695	9682-9695	15- 28	2	39
30	30	696	9696-9709	29- 42	3	39
31	31	697	9710-9723	43- 56	4	39

\* Revised, i.e. Day 667 was Day 668, etc.

APPENDIX C  
LANDSAT-3 DOCUMENTS ISSUED THIS REPORT PERIOD

<u>No.</u>	<u>Document No.</u>	<u>Title and Date</u>
1	14NO-L-3-247	MSS Band 5 Landsat-3: Fourteenth Outgas Cycle and Subsequent Operation, dated 16 February 1979
2	14NO-L-3-248	Changes in Cal Wedge Values - Landsat 3 MSS, dated 15 March 1979
3	14NO-L-3-249	MSS Band 5 Landsat-3: Fifteenth Outgas Cycle and Subsequent Operation, dated 12 March 1979
4	14NO-L-3250	Frequently Missed Line Starts - MSS Landsat-3, dated 3 April 1979